

Market Analysis
Program (MAP)

**Cross-Industry
Markets
1988-1993**

Accounting
Sector

INPUT®

1280 Villa Street, Mountain View, CA 94041 (415) 961-3300



DECEMBER 1988

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MARKETS
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Introduction

A Definition

The cross-industry accounting sector consists of those products and services that are bought in more than one industry sector to serve the following functions:

- Accounts payable
- Accounts receivable
- Billing/Invoicing
- Costing
- Fixed assets
- General ledger
- International accounting (currency conversion, value-added taxation, and consolidation)
- Integrated accounting
- Purchasing
- Taxation
- Financial management reporting
- Other

Related applications covered in other sectors include:

- Financial modeling and sales analysis (see "Planning and Analysis" sector)
- Sales management and order entry (see "Other Cross Industry" sector)
- Payroll and personnel (see "Human Resources" sector)

Accounting products and services that are directed to a specific industry are covered in that industry sector.

B**Environment/
Overview**

Accounting software has traditionally been bought in standalone modules for a variety of reasons: individual module prices were within approval levels of local managers, buying one or more separable modules was preferable to the risk of buying one complex system, the various functions in the accounting department were semiautonomous, and supporting applications were at various levels of need and implementation sophistication.

This situation has changed and integration is now of paramount importance. Other key trends in accounting software now include:

- An evolution from batch to on-line transaction-based systems with satisfactory performance
- Systems containing "what if" capabilities for budget projections
- Systems emphasizing government reporting requirements
- The continuing transition from individual modules with multiple-keystroke entries to integrated modules where information is updated in all relevant modules with a single keystroke
- A general movement from financial-accounting-oriented software to software that not only satisfies financial accounting needs, but also management accounting and management reporting needs. These systems must be integrated with the industry-specific systems of the operating units.
- More flexibility in accounting software, allowing the developer to tailor portions of the product to meet customer requirements, particularly for integration
- More personal-computer-based accounting software, especially versions operating on networks of PCs
- Data bases integrated across accounting and operational functions: for example, a customer data base supporting accounts receivable and sales management applications
- A movement from VSAM-based to DBMS-based files permitting better security, layering of data, and applications integration
- A transition from single-user-based software to systems that support multiple-user access in a networked environment while allowing for adequate security.



In addition, the increase in international business for U.S. companies has increased the need for accounting software to support multinational operations. Examples of vendor responses to these trends include:

- MSA offers a 4GL technology, Information Expert, to integrate its software with in-house and third-party software, and to provide query and reporting from multiple data bases.
- Software 2000 and other vendors have accounting software that can be linked to their human resource packages.
- McCormack & Dodge (subsidiary of Dun & Bradstreet) accounting software can be linked to its manufacturing software.
- Cullinet offers data base capabilities, on-line operation, and financial reporting with its accounting software.

In general, vendors of accounting software have upgraded product capabilities to include such features as integrated modules, DBMS-based files, query and reporting modules, and modeling or "spreadsheet" capabilities for decision support or "what if" analysis of budget projections. On-line capabilities are also offered by most vendors. Even vendors of PC software are now offering on-line, integrated accounting software with reporting and analysis capabilities.

Technology, particularly through PC/workstations and relational data base management systems (RDBMS), is exerting an impact on the market for accounting software:

- Many vendors, such as MSA and McCormack & Dodge, offer links between accounting data bases and PC software.
- Accounting software is offered that can be interfaced to relational data management systems.
 - MSA has concluded an arrangement with IBM to be an authorized application specialist for IBM's DB2.
 - ORACLE is offering applications built around its RDBMS.
- PC-based, integrated software systems that can be used on a LAN are competing with minicomputer applications.



C**Industry Trends**

The increasing interest in the U.S. in productivity and bottom-line return, as well as the increase in international business, are trends encouraging the growth of the accounting market.

There is a strong trend to provide more customization in accounting systems and services. A number of vendors meet the demand for software modification through professional service activities. Others have provided the means of changing software through the selection of menu-driven parameters. Some vendors will make arrangements for user modification of software.

Application packages that were sold solely on a cross-industry basis are now sold in customized forms for various market sectors, reflecting the need for integration with sales, operations, and other functions specialized to a specific organization or industry.

The recognition of the importance of corporate information resources is a trend that has led many firms to upgrade their accounting resources and develop uniform accounting. An allied trend is the growing desire to have accounting data up to date as rapidly as possible, encouraging the use of on-line applications.

The increasing use of PCs by executive management to analyze accounting data and develop plans based on this data is having a significant impact on application software. Executive information systems (EISs) rely largely on access to financial data generated by accounting systems, for example, and their growing use is putting pressure on information systems (IS) departments for sufficient capability in the accounting software to adequately support this activity.

D**Driving Forces**

"Concern with bottom-line return" is the prime driving force for this sector, as shown in Exhibit I-1. Such concern can result in plant closings and relocations, sales of assets, and other business activities highlighted in financial and news reports. This concern is having an impact on the evaluation and upgrading of accounting software to provide more-accurate and more up-to-date information.

The concern with financial performance has resulted in the desire to respond rapidly to needs for improved or additional accounting. As a result, the "rapid response and deployment" of capabilities has become a second driving force for the use of information technology in this sector.

- Many information service vendors—such as MSA, McCormack & Dodge, and Cullinet—are highlighting their ability to respond rapidly to needs on a variety of equipment and with various modes of service and product alternatives.

the 1990s, the number of people in the UK who are aged 65 and over has increased by 1.5 million, and the number of people aged 75 and over has increased by 1 million (Office of National Statistics 2000). The number of people aged 65 and over is projected to increase to 10.5 million by 2026, and the number of people aged 75 and over to 6.5 million (Office of National Statistics 2000).

There is a growing awareness of the need to address the health care needs of older people, and the importance of ensuring that they are able to live independently for as long as possible. This has led to a number of initiatives aimed at improving the health and well-being of older people, including the development of new services and the reorganisation of existing services. One of the key areas of focus is the need to ensure that older people have access to the services and support that they need to live independently. This includes access to health care, social care, and housing.

One of the main challenges in providing health care to older people is the need to ensure that the services are tailored to their needs. Older people often have a range of health problems, and they may also have social and psychological needs. It is therefore important to take a holistic approach to their care, and to ensure that all of their needs are met. This can be achieved by working in partnership with older people, and by involving them in decisions about their care.

Another challenge is the need to ensure that health care services are accessible to older people. Many older people have difficulty travelling, and they may also have difficulty understanding the services that are available. It is therefore important to ensure that services are accessible to older people, and that they are able to understand and use the services that are available. This can be achieved by providing transport services, and by providing information in a way that is easy to understand.

One of the key areas of focus in the development of new services is the need to ensure that older people have access to the services and support that they need to live independently. This includes access to health care, social care, and housing. It is therefore important to ensure that these services are available to older people, and that they are able to access them. This can be achieved by working in partnership with older people, and by involving them in decisions about their care.

Another key area of focus is the need to ensure that older people are able to live independently for as long as possible. This includes ensuring that they have access to the services and support that they need to live independently. This can be achieved by working in partnership with older people, and by involving them in decisions about their care. It is also important to ensure that older people are able to live in their own homes for as long as possible, and that they are able to access the services and support that they need to live independently.

In conclusion, the need to address the health care needs of older people is a growing priority. It is therefore important to ensure that health care services are tailored to their needs, and that they are accessible to older people. This can be achieved by working in partnership with older people, and by involving them in decisions about their care.

- Other vendors—such as DeskTop Financial, Comtex, and CTG—are anticipating the needs of firms and employing consultative sales approaches to uncover and satisfy needs for rapid deployment.

EXHIBIT I-1

**CROSS-INDUSTRY ACCOUNTING
DRIVING FORCES**

- Concern with Bottom-Line Return
- Rapid Response
- Expanding Wealth of Powerful Technology
- International Competition
- Unstable Organization Environment

The “expanding wealth of powerful technology,” another driving force in this sector, suggests to users that there are many new approaches to rapidly meet needs. Consequently, there must be vendors that can help upgrade accounting capabilities or utilize accounting information.

- This situation has resulted in uncoordinated systems activities in user areas and requests by many users to handle or become involved in the accounting work for their departments.
- Several users who do financial analysis work on fast, new workstations were quick to point out inadequacies in the accounting software developed and acquired by the IS department.

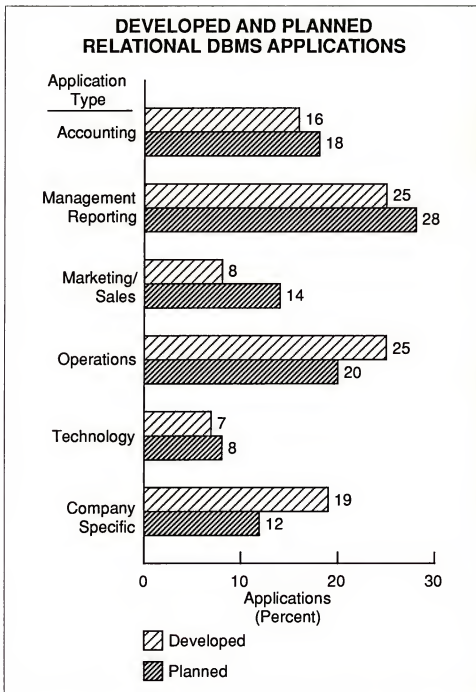
As the foregoing illustrates, an “unstable organization environment” is a driving force that impacts the use of information technology. The roles of users, staff groups, IS managers, and company executives must be clarified in regard to the care and use of the corporate information resource.

“International competition” is also a driving force in this sector since the need to deal with exchange rates and difficult accounting rules has complicated the use of software.



As shown in Exhibit I-2, however, the basic driving force for the growth of the market is user intentions to buy/install accounting systems based on relational data base management software. The reason for this demand is the obsolete characteristics of the existing accounting systems in view of the trends mentioned above. In many cases, this obsolescence requires not just the replacement of a module or two, but the fundamental restructuring of the information architecture on which the accounting systems are based.

EXHIBIT I-2



the 1990s, the number of people in the UK who are employed in the public sector has increased by 1.5 million, from 2.5 million in 1980 to 4 million in 1995. The public sector has also become an important employer of women, with 5.5 million women employed in the public sector in 1995, compared with 4.5 million in 1980.

There are a number of reasons why the public sector has become an important employer of women. One reason is that the public sector has a high proportion of women in its workforce. In 1995, 88% of the public sector workforce were women, compared with 78% in 1980. This is due to a number of factors, including the fact that the public sector has a high proportion of jobs that are traditionally held by women, such as teaching, nursing, and social work.

Another reason why the public sector has become an important employer of women is that it has a high proportion of jobs that are full-time. In 1995, 68% of the public sector workforce were employed full-time, compared with 58% in 1980. This is due to a number of factors, including the fact that the public sector has a high proportion of jobs that are essential to the functioning of the state, such as those in the health and education sectors.

A third reason why the public sector has become an important employer of women is that it has a high proportion of jobs that are well-paid. In 1995, the average salary of a public sector employee was £18,000, compared with £15,000 in 1980. This is due to a number of factors, including the fact that the public sector has a high proportion of jobs that are in the higher grades of the public sector pay scale, such as those in the senior management and professional grades.

There are a number of other reasons why the public sector has become an important employer of women. For example, the public sector has a high proportion of jobs that are secure, and a high proportion of jobs that offer good career prospects. These factors, along with the others mentioned above, have made the public sector an attractive employer for women.

The public sector has also become an important employer of women because it has a high proportion of jobs that are flexible. In 1995, 28% of the public sector workforce were employed on flexible contracts, compared with 18% in 1980. This is due to a number of factors, including the fact that the public sector has a high proportion of jobs that are part-time or temporary, and a high proportion of jobs that offer flexible working hours.

There are a number of other reasons why the public sector has become an important employer of women. For example, the public sector has a high proportion of jobs that are well-located, and a high proportion of jobs that offer good benefits. These factors, along with the others mentioned above, have made the public sector an attractive employer for women.

The public sector has also become an important employer of women because it has a high proportion of jobs that are well-structured. In 1995, 68% of the public sector workforce were employed in jobs that were well-structured, compared with 58% in 1980. This is due to a number of factors, including the fact that the public sector has a high proportion of jobs that are in the higher grades of the public sector pay scale, and a high proportion of jobs that offer good career prospects.

E**Major Issues and
Inhibiting Factors for
Vendors**

As Exhibit I-3 indicates, the major issue for information services vendors is "integration" of applications and data. Where vendors of installed packages cannot supply integrated solutions, other approaches are being explored by customers.

EXHIBIT I-3**ISSUES FOR INFORMATION
SERVICES VENDORS**

- Integration
- Data Management
- User Involvement
- Connectivity
- EDI Software
- Interfaces to Graphics and
Analysis Software

The increasing importance of accounting data has made data management a vital issue for vendors. The issue is recognized by users, IS management, and information service vendors, but there are many situations where adequate approaches to the needs for presentation and analysis of data are not being made. In a number of situations, IS managers and/or vendors report there is a realization that relational technology will have to be used. Vendors will have to make decisions on what data management products they support or offer, and when they will support relational technology.

User involvement is another major issue for information service vendors. Vendors have to assess whether their contacts with a prospect should include or start with end users, according to one vendor representative who has sold accounting software and professional services directly to users. A lack of information on user requirements can be more of an inhibiting factor at this time, since users are becoming much more active in approving decisions.

"Connectivity" is a major issue, as vendors are discovering in many companies. Data must be obtained from and sent to other systems or to customers or suppliers. Vendors must be prepared to address these needs. An issue that is becoming more important to vendors is providing

EDI software. Major vendors of products for the accounting sector, including MSA, have taken steps to allow users to take advantage of EDI savings.

EDI is the application-to-application exchange of intercompany business data in standard formats. It can involve automatic ordering and accounting by computers at a customer's location; automatic order confirmation; shipment information transmitted to the buyer from computers at the seller's location; and automatic billing, payment, and posting of accounting records.

Interest in EDI is beginning to grow in business as more customers demand or ask about it. The potential for cost reduction is enormous, simply through reducing labor requirements for data re-entry and thereby eliminating errors caused by rekeying. Users have estimated potential cost reductions in these areas of as much as 70%.

Despite the potential of EDI in business, its use has been delayed by immediate problems and the lack of information about means of taking advantage of EDI.

Users increasingly expect to use accounting software with other capabilities so that "interfaces to graphics and analysis software" must be considered as an issue. As one vendor noted, if you don't offer these capabilities, you should have a means of recommending or finding available packages so that evaluations of competitive products won't exclude your product.

F

Major Issues for Information Systems (IS) Managers

Executives expect to fulfill accounting-related commitments through the use of information technology. Thus "rising management expectations" is the prime issue for IS departments, as shown in Exhibit I-4.

- In order for IS management to be perceived as making a real contribution to organization goals, it is necessary to become involved in addressing problems, even if other pressures or a backlog or work make it difficult to respond.
- Development projects or the backlog or work with which central IS is struggling could become a reason for departmental users to bypass IS management in the review and recommendation of accounting software.



EXHIBIT I-4

**ISSUES FOR INFORMATION
SYSTEMS DEPARTMENTS**

- Rising Management Expectations
- User Demands for Increasingly Complex Solutions
- Integration of Data and Applications
- Backlog
- Uniformity in Accounting and Financial Systems

The second issue for IS management to consider is the "demand from users for increasingly complex systems."

- Users report an increasing need to integrate accounting software with manufacturing, distribution, human resources, or other functions.
- On-line accounting and connectivity between central and departmental systems are desired to resolve discrepancies.
- There are also demands for reports that provide access to, or combine with, more data: these applications require data management capabilities.

IS departments generally recognize that the "integration of data and applications" is a key issue in regard to the use of cross-industry accounting software. Such integration is becoming one of the most important factors for evaluating vendor products. Management and users are pressing IS for solutions that can only be provided through such integration.

As noted previously, the "backlog" of work being handled by the IS department is an issue that can encourage users to consider vendor products. Accounting software can be so crucial to company plans and to the evaluation of the IS department in terms of its contribution, that IS management must take a proactive role by exploring priorities and the use of outside resources with management.

IS may have to seek vendor aid to explore what integration may be possible between in-house application software and vendor accounting software, and whether vendor products can support planned or operational data management capabilities.



"Uniformity in accounting and financial systems" is an issue that many firms are now addressing. The combination of decentralizing profit responsibility with centralizing financial controls requires absolute uniformity across systems in operational units. Corporate restructuring possibilities also support this trend.

G**Major Issues for End Users**

A key issue for end users is their "role in system development" as shown in Exhibit I-5. End users are increasingly active in obtaining application software or turnkey systems from vendors that have developed accounting software for departmental computers.

EXHIBIT I-5

ISSUES FOR END USERS

- Role in Systems Development
- Integration
- Connectivity
- Data Management
- Uniformity in Accounting and Financial Systems

End users need to clarify their role in development activities so that they can call upon or work with IS on issues of "integration," "connectivity," "data management," and "uniformity in accounting and financial systems." These issues arise on the departmental level but should not be solved at that level. Guidelines, standards, and aid from a central IS office are necessary to develop and safeguard the corporate information resource and to put corporate networks and data management technology in place.

Users and information service vendors must ensure that they do not start activities that will be set aside to meet corporate goals. A director of systems planning at a major corporation stated that it had been necessary to shut down accounting-related projects in several divisions that were using vendor resources, since they would not support corporate objectives. He noted that vendors were often used but that they or the users had to perform research on corporate guidelines to continue to sell services at a departmental level.

the 1990s, the number of people in the UK who are aged 65 and over has increased by 1.5 million, and the number of people aged 75 and over has increased by 1.2 million (Office of National Statistics 1999).

There is a growing awareness of the need to address the needs of older people in the community. The Department of Health (1999) has published a strategy for older people, which sets out the government's commitment to older people and the actions that will be taken to improve their lives. The strategy is based on the following principles:

- Older people should be able to live independently and actively in the community.
- Older people should be able to access the services and facilities they need.
- Older people should be able to participate in the decisions that affect their lives.
- Older people should be able to live in a safe and secure environment.

The strategy also sets out a number of specific actions that will be taken to improve the lives of older people, including:

- Improving the quality of care in residential care homes.
- Improving the quality of care in the community.
- Improving the quality of care in hospitals.
- Improving the quality of care in nursing homes.

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II

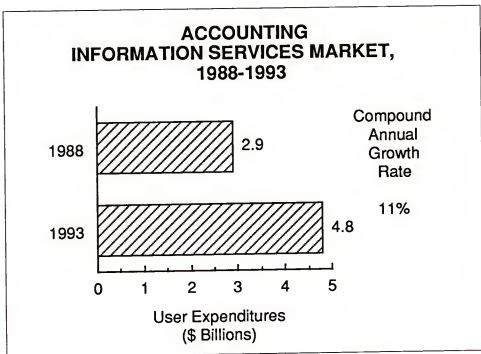
Market Forecasts

A

Overview

The growth rate of the cross-industry accounting products and services market was 9% from 1986 to 1987 and will increase to an 11% average for the years 1988 to 1993, as shown in Exhibit II-1. Faster growth will be achieved in industry-specific accounting areas, such as billing and accounts receivable in the medical sector or various EDI-related application areas in wholesale distribution and manufacturing.

EXHIBIT II-1



the 1990s, the number of people in the UK who are aged 65 and over has increased by 1.5 million, and the number of people aged 75 and over has increased by 1 million (Office for National Statistics 1999). The number of people aged 65 and over is projected to increase to 6.5 million by 2011, and the number of people aged 75 and over to 3.5 million (Office for National Statistics 1999).

There is a growing awareness of the need to address the health care needs of the elderly population. The Department of Health (1999) has identified the need to develop a new approach to the care of the elderly, and has set out a number of key principles for the development of a new approach to the care of the elderly. These principles are: to ensure that the elderly population is given the same high quality of care as other groups; to ensure that the elderly population is given the same range of services as other groups; to ensure that the elderly population is given the same level of support as other groups; and to ensure that the elderly population is given the same level of respect as other groups.

The Department of Health (1999) has also set out a number of key objectives for the development of a new approach to the care of the elderly. These objectives are: to ensure that the elderly population is given the same high quality of care as other groups; to ensure that the elderly population is given the same range of services as other groups; to ensure that the elderly population is given the same level of support as other groups; and to ensure that the elderly population is given the same level of respect as other groups.

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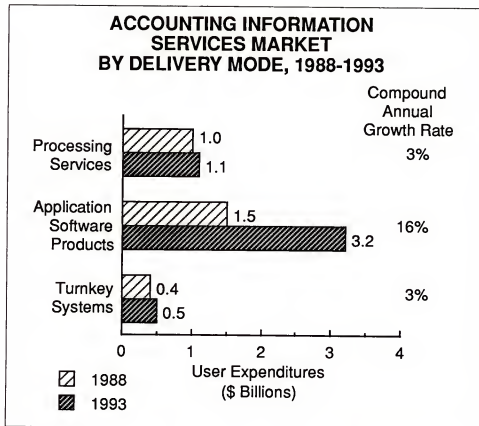
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B
Processing Services

As shown in Exhibit II-2, transaction processing services are still a \$1-billion-a-year business despite the aging software on which many services are based. In addition to the problem of inertia, there are several other reasons for this market to maintain its size.

EXHIBIT II-2



- Large national and regional accounting firms offer on-line or batch accounting services for customers as a "lock-in" to that firm's accounting and auditing services.
- Industry associations offer members discounted accounting services at a fee over the basic membership charge.
- Wholesalers are offering accounting services to retailers to maintain a business relationship. Most often, these services are provided to retailers in service businesses that are not heavily computerized, such as florists, gasoline service stations, automobile repair shops, shoe repair shops, and barber shops.
- Accounting for industry associations and other organizations may be performed through an on-line or distributed service to reduce the need for a full in-house computer staff.



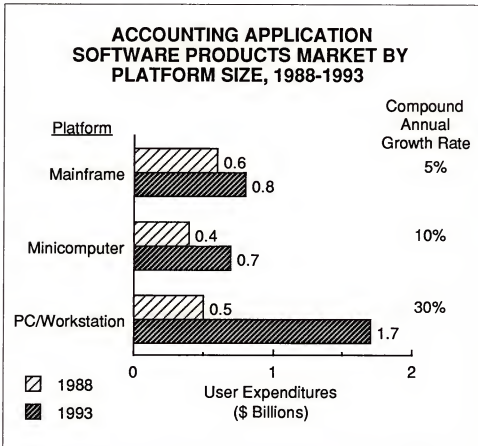
- There is a constant “drop-out” of services users, but this attrition is somewhat offset by new vendors and new, small company users.
- In addition, there are niche markets for services such as corporate tax processing.

C

Software Products

Although the overall growth rate for application software is 16%, the PC/workstation segment will continue to grow much faster over the next five years, while the mainframe segment stays relatively static, as shown in Exhibit II-3.

EXHIBIT II-3



Indeed in the mainframe area, a prime source of sales will be replacement: a vendor sells a new version of a product to an existing customer. New-account sales will be difficult to obtain. A replacement sale removes the maintenance revenue stream for an existing product from the market, although, of course, it then introduces a new maintenance revenue stream of its own. However, this stream will not start until after installation, which takes far longer with the current generation of products.

the 1990s, the number of people in the world who are undernourished has increased from 600 million to 800 million (FAO 1996). The number of people who are malnourished has increased from 1.1 billion to 1.5 billion (FAO 1996).

There are a number of reasons why the number of people who are undernourished has increased. One of the main reasons is that the world population has increased. The world population is now over 6 billion and is expected to reach 9 billion by the year 2050. This means that there are more people in the world who need food. Another reason is that the world's food supply is not increasing fast enough to keep up with the growing population. This is because the world's food supply is based on a few crops, such as wheat, rice, and corn, which are grown in a few countries. This makes the world's food supply very vulnerable to changes in the weather or in the prices of these crops.

There are also a number of reasons why the number of people who are malnourished has increased. One of the main reasons is that the world's food supply is not distributed evenly. Some countries have a surplus of food, while others have a shortage. This is because the world's food supply is based on a few crops, which are grown in a few countries. This makes the world's food supply very vulnerable to changes in the weather or in the prices of these crops. Another reason is that the world's food supply is not of good quality. Some of the food that is produced is of poor quality, which means that it is not as nutritious as it could be. This is because the world's food supply is based on a few crops, which are grown in a few countries. This makes the world's food supply very vulnerable to changes in the weather or in the prices of these crops.

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The installation process has a significant effect on the time distribution of user expenditures and, hence, vendor revenues. It is probable that the 4GL/RDBMS characteristics of the new accounting products, together with implementation and conversion aids, will reduce implementation time significantly, thus speeding up the payment process and increasing the market growth rate again.

Another "negative" factor on the mainframe accounting application software product market growth is that many of the future purchases of these packages will be embedded in professional services/systems integration contracts. In many cases today, professional services associated with the purchase of a software package may equal or exceed the cost of the package itself. Where these services are differentiated in the purchase (e.g., when Andersen Consulting implements an MSA package through its OASIS program), INPUT counts the expenditures in separate categories (professional services and software products). However, where expenditures are "bundled," INPUT allocates them according to the delivery mode receiving the largest share. Thus, when CGA sells an accounting system based on the professional services modification and implementation of software product "kernels," the expenditures are included in the professional services or systems integration (if hardware is included) markets.

Also, generic application software products will increasingly be modified to meet the needs of specific industry customers. This modification will become easier with software product building tools such as documentation generation aids. As such, these products will be industry specific. Thus, the overall market for accounting software will probably continue to grow in the 20%-plus range for the next five years.

In minicomputer software there will be stronger growth than in the mainframe area over the next five years. In fact, the growth rate of 10% may be understated. Much depends on the success of the new generation of medium-sized computers, such as the AS/400, and on the ability of vendors to develop distributed data base systems. The latter criterion will enable some accounting applications to be removed from central mainframes and given to departmental computers.

In the medium-sized product range, there is less need for extensive modification and customization, although the products must support these facilities. Integration with other applications is also less of a problem.

At the microcomputer level customers buy accounting software for one or more of the following reasons:

- To produce reports with management information
- To reduce errors now found with a manual approach

- To solve specific problems such as processing invoices or needing an up-to-date inventory position

Many customers are still first-time users or converts from processing services.

Microcomputer-based accounting software is catching on in small businesses. INPUT has identified two separate camps for accounting software—one favors easy-to-use software, while the other prefers full-featured software with extensive report generation capability. Due to the need for more specific information in a preferred format, about 45% of the easy-to-use software group will convert to the more feature-oriented software within two to three years.

Software vendors must select which channel(s) to use for distributing their products. Besides direct sales, vendors can sell through CPAs or alternative channels such as trade associations. Trade associations are the number-one accounting and application software distribution channel for funeral homes and dental practices, for example.

Again, a negative factor for the growth of microcomputer cross-industry accounting applications products is the increasing "specialization" of the products to particular types of companies and organizations. Additionally, there is less add-on revenue opportunity for maintenance at the lower price levels. Peachtree Software, which has become a very successful, fast-growing company in this area, is now adding various continuing revenue streams to its product line to address this opportunity.

D

Turnkey Systems

User expenditures for the accounting turnkey systems will primarily come from value-added resellers (VARs), which integrate computer hardware with an operating system and accounting application software. Training and follow-on customer support are important components of the sale.

However, "accounting" turnkey systems will represent a smaller portion of a total turnkey market. Smart VARs are adding value (and, hence, can justify charging a higher price) through application software tailored to a specific industry. This strategy moves their products from this market segment to the particular target industry sector.

E

Application Markets

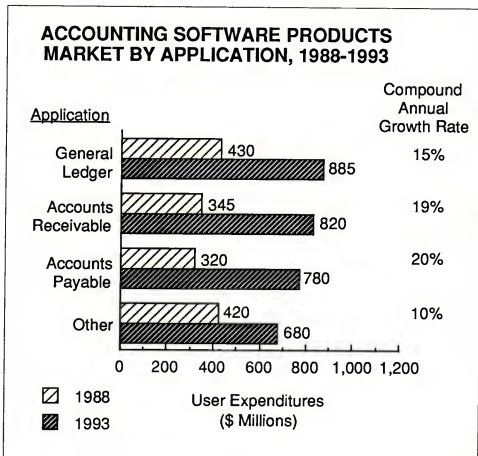
A Computer Intelligence survey showed that general ledger, accounts receivable, and accounts payable were among the top four applications planned for implementation on mainframes. The proportion of respondents planning implementation was lower than identified in 1986—consistent with the general trend for this type of application. The responses include those companies planning to implement software them-



selves as well as those planning to purchase industry-specialized or cross-industry packages, and those planning to contract with a professional services company.

Exhibit II-4 shows market growth by accounting application type.

EXHIBIT II-4



Although accounts payable applications software will grow slightly faster than accounts receivable and general ledger in the mainframe markets, the situation will be reversed as the size of the buying company and the corresponding platform size decreases. Large companies have already implemented accounts receivable systems tied to billing systems. In large companies, EDI and Just-In-Time (JIT) systems are now causing major changes to the purchasing/accounts payable process—hence the emphasis on this area.

In small companies, particularly those installing their own systems for the first time, general ledger and accounts receivable take precedence over accounts payable, and their application growth rates are therefore higher.

In the personal computer/workstation area the market growth rate for "other" integrated systems (where the applications are bundled together in one package price) is currently higher than those for individual packages. This will change as vendors differentiate their products and the complexity of individual modules increases at this platform size.

For large companies and the mainframe market, the "other" applications category will grow the fastest because of the opportunities related to multinational accounting, tax accounting, etc. In the medium-sized (minicomputer) companies, emphasis will continue to be on the three basic applications.



the 1990s, the number of people in the world who are under 15 years of age has increased from 1.1 billion to 1.5 billion, and the number of people aged 65 and over has increased from 0.2 billion to 0.4 billion (United Nations 1999).

There is a growing awareness of the need to address the needs of the young and the old in the context of the ageing of the population. The United Nations (1999) has identified the need to address the needs of the young and the old as a key challenge for the 21st century. The World Bank (1999) has identified the need to address the needs of the young and the old as a key challenge for the 21st century.

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Competitive Developments

A

Market Characteristics

Many large vendors offer cross-industry accounting products and services—the market is healthy, and these offerings provide entry into many vertical sectors and are means of selling other products. Computer vendors such as IBM, Unisys, and H-P use accounting software to help sell computing equipment as well as gain revenue. Newer accounting software, which stores more detail and is usually integrated, can help sell new hardware systems and system software. These vendors actively encourage vendors of accounting software to develop products for their equipment because of the essential nature of the products. Particularly at the minicomputer level, selection of the software is often at least equal in importance to the selection of the computers to operate it on.

Large vendors of accounting software are offering products on a variety of equipment and with many features or interfaces to other software to increase market share.

- McCormack & Dodge supports IBM mainframes and System/3X computers, H-P 3000 and DEC VAX equipment and also offers linkage to relational data management products, development aids, and VAX-to-IBM interfaces.
- MSA has offered accounting software on IBM mainframes, System/3X computers, and DEC VAX as well as 4GL and other capabilities that will work with the software.

Mid-sized and small software vendors tend to support one or two hardware systems but offer features that will widen market appeal.

- Ross Data has accounting software for DEC VAX computers and offers linkage to financial modeling and analysis software.



- Harris Data has accounting software for the IBM System/3X and AS/400 computers that can be linked to distribution and accounting software.
- Micro Data Net has accounting software for PCs that it sells with connectivity software.

There are numerous vendors of accounting software for PCs that are now selling application software to divisions and offices of large corporations. They include vendors such as Solomon, which has integrated accounting software that runs on a LAN. Major vendors, such as MSA, are planning to compete against these vendors by offering software for PCs that will work with their central software in distributed applications that can't be implemented with competitive PC software.

Vendors rank integration of accounting software highest in a list of key applications, as shown in Exhibit III-1. This is the key need that is recognized by large and small vendors. Practically all vendors with significant revenue have "integrated" software. However, "integration" is a term that must be used with care. INPUT considers the following characteristics necessary for integration:

- Single keystroke updating of all relevant files
- Sharing of files among all relevant applications modules
- Common definitions of all fields and elements, and sharing of these among all relevant modules
- Standard user interfaces across all applications modules, including command formats and user assistance

Although applications may be integrated in the above sense, they will most often still be sold on a module-by-module basis for a variety of reasons. Only at the PC/workstation level for applications software products is "fully integrated" software usually sold at an "all-in-one" price.

The integration of a DBMS with accounting software is ranked next as a key application or technology. Data management capabilities—particularly relational data management—are becoming of significant interest to vendors in this sector.

On-line accounting software ranks third as a key application/technology. Global, Walker Interactive, Cullinet, and other vendors are highlighting the availability of on-line software.

EXHIBIT III-1

**KEY APPLICATIONS/TECHNOLOGIES
IDENTIFIED BY VENDORS**

Applications/Technology	Importance (5 = High, 1 =Low)
Integration of Accounting Software	4.5
DBMS Integrated with Accounting Software	4.2
On-Line Applications	4.1
Interfaces to Analysis, Spreadsheet, Graphics, and Modeling Software	3.7
Fully Integrated Software for PC Hardware	3.6
Interface to EDI Software	3.2
Availability of 4GL or Other Capabilities to Customize Software	3.0

Source: INPUT

Interfaces to analysis, spreadsheet, and modeling capabilities and to graphics also ranked high since they are becoming features that help to sell accounting software.

"Fully integrated" software for PC/workstations is a separate market for mainframe/minicomputer software vendors. Although important, it is not as critical as improving the packages key to their basic business.

Similarly with EDI software interfaces: in addition, this is only critical at this point for mainframe vendors whose clients are looking for "outreach" through their own EDI. Many smaller customers will be on the receiving end of EDI systems and will have interface software provided to them, as happens in soft drink bottling and distribution, automobile distribution, and other industry sectors.

The availability of customization tools such as 4GLs is ranked surprisingly low, considering the importance users place on the ability to cus-

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tomize software to their specific needs. It is possible that vendors consider ad-hoc output customization to be sufficient and that it can well be handled in many cases by the "analysis, spreadsheet, graphics, and modeling software" referred to above. In addition, the DBMS integration will allow some basic structural customization. Thus, 4GLs may be regarded as dangerous in that they can be used for uncontrolled application customization that would result in totally customized systems where maintenance would not be desired by, or useful to, the customer.

B

Leading and Emerging Vendors

The largest companies in this market are mainframe application software vendors, particularly for IBM systems, as shown in Exhibit III-2. However, this is a very fragmented market with large numbers of vendors of processing services, turnkey systems, and PC/workstation software.

- ADP and Automatic Business Centers have significant processing services in their sector. Most other processing vendors are small and serve local markets.
- Turnkey vendors are primarily value-added resellers marketing IBM 36, 38, and AS/400 solutions; Pick system solutions; and microcomputer software.

Vendors of accounting software packages can generally be grouped in three tiers:

- A group of vendors with higher revenues, as shown in Exhibit III-2, has accounting software for a number of machine platforms, including IBM mainframes, and offers a number of features or supplemental capabilities. This group includes Dun & Bradstreet (McCormack & Dodge), MSA, IBM, Computer Associates, and Cullinet.
- A second tier of vendors tends to specialize in a narrow range of hardware. This group includes MCBA (DEC VAX and IBM Micro), Ross Data (DEC VAX), AMS (IBM mini), Cyma/McGraw Hill (IBM micro), Concord Management (IBM micro), and a small number of other firms.
- The third tier includes a large number of vendors with small revenues. Most of these vendors sell microcomputer software.

the 1990s, the number of people in the UK who are employed in the public sector has increased by 1.5 million, from 2.5 million in 1980 to 4 million in 1998 (Department of Health 1999). The number of people employed in the health sector has increased by 1.2 million, from 2.2 million in 1980 to 3.4 million in 1998.

There is a growing emphasis on the need to improve the efficiency of the public sector, and to ensure that the public sector is able to deliver the services that are required by the public. This has led to a number of initiatives, including the introduction of competition, the restructuring of public sector organisations, and the introduction of performance measures. The aim of these initiatives is to ensure that the public sector is able to deliver the services that are required by the public, in a cost-effective and efficient manner.

One of the key challenges facing the public sector is the need to improve the efficiency of the public sector. This is a complex task, and it requires a number of different approaches. One approach is to introduce competition, which can help to drive down costs and improve efficiency. Another approach is to restructure public sector organisations, which can help to reduce duplication and improve efficiency. A third approach is to introduce performance measures, which can help to ensure that the public sector is able to deliver the services that are required by the public, in a cost-effective and efficient manner.

There are a number of different ways in which the public sector can be improved. One way is to introduce competition, which can help to drive down costs and improve efficiency. Another way is to restructure public sector organisations, which can help to reduce duplication and improve efficiency. A third way is to introduce performance measures, which can help to ensure that the public sector is able to deliver the services that are required by the public, in a cost-effective and efficient manner.

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EXHIBIT III-2

**SELECTED ACCOUNTING SOFTWARE
VENDORS BY PLATFORM TYPE**

Platform	Leading Independent Accounting Software Vendors*
IBM Mainframe	MSA (Atlanta, GA); McCormack & Dodge (Natick, MA); Cullinet (Westwood, MA); CAI (Westbury, NY); Data Design Associates (Sunnyvale, CA); Walker Interactive Products (San Francisco, CA)
IBM Minicomputer (S3X, 434X)	American Software (Atlanta, GA) American Management Systems (Arlington, VA); System Software Associates (Chicago, IL); Global Software (Raleigh, NC); Lawson Associates (Minneapolis, MN); Pansophic (Chicago, IL)
IBM PC/Workstation	Peachtree Software (Atlanta, GA); TLB Inc. (Malvern, PA); Unisys (Open Systems Inc.; Minneapolis, MN); Computer Associates (Sorcim; San Jose, CA); MCBA (Glendale, CA); CYMA/McGraw Hill; DAC Software (Dallas, TX)
DEC Minicomputer	MCBA (Glendale, CA); Ross Systems (Palo Alto, CA); Cincom Systems (Cincinnati, OH); Collier-Jackson (Tampa, FL); Computer Associates International (McLean, VA); Compu-Share (Lubbock, TX)
Apple PC/Workstation	State-of-the-Art Inc. (Costa Mesa, CA); Focus Software Corporation (Bloomington, MN); Great Plains Software (Fargo, ND); Softsync (NY, NY)

*Many of these vendors offer products on more than one platform.

Source: INPUT

Small vendors regularly enter this sector. One of the larger, more recent entrants is Oracle, which is using its data base capabilities as a wedge for selling a new line of accounting software.

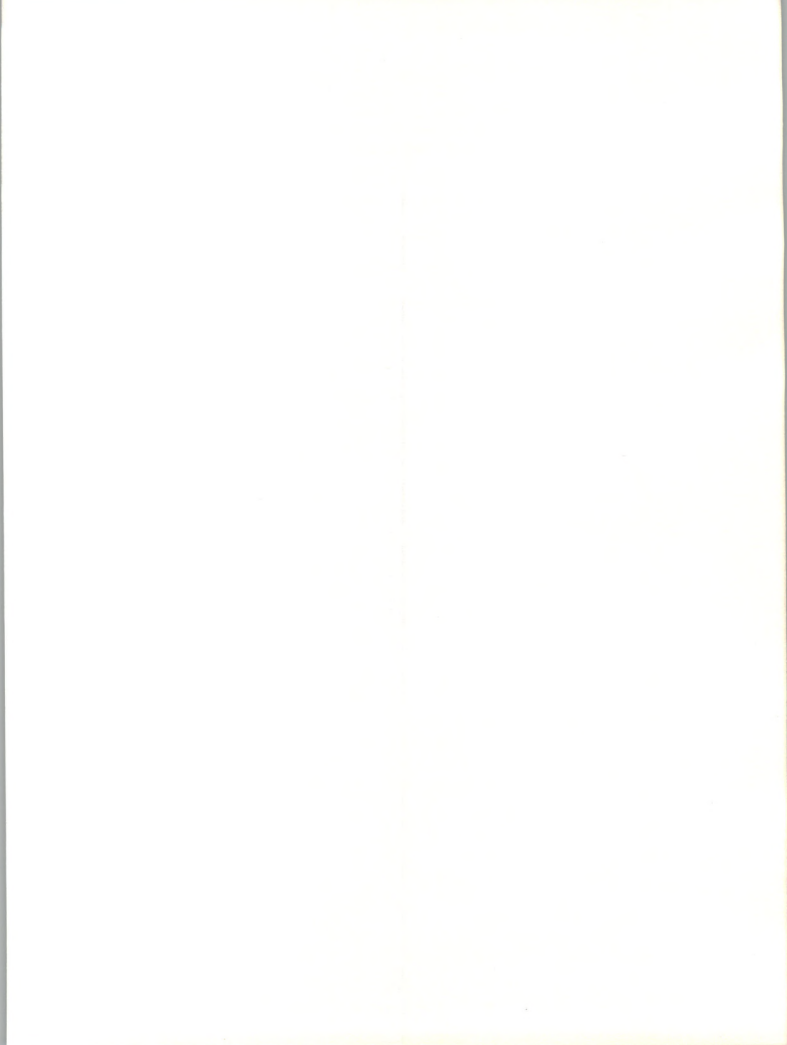
A critical area of competition that is beginning to emerge is providing distributed application software that will require customers to use software for workstation/PCs that has been developed by the vendor supplying the mainframe. MSA is developing this capability.

MSA is also working with IBM to be an "authorized application specialist" for DB2 and EDI applications. These moves are in line with strategies in the cross-industry accounting market, where new capabilities and features are used to widen market appeal.

C

Vendor Profiles

Following are profiles of significant vendors, particularly software product vendors. Many of them provide products and services to markets other than cross-industry accounting. In these profiles, emphasis has been placed on this one specific market. Fuller profiles, where appropriate, are contained in INPUT's Vendor Analysis Program.



**AUTOMATIC DATA
PROCESSING, INC.**

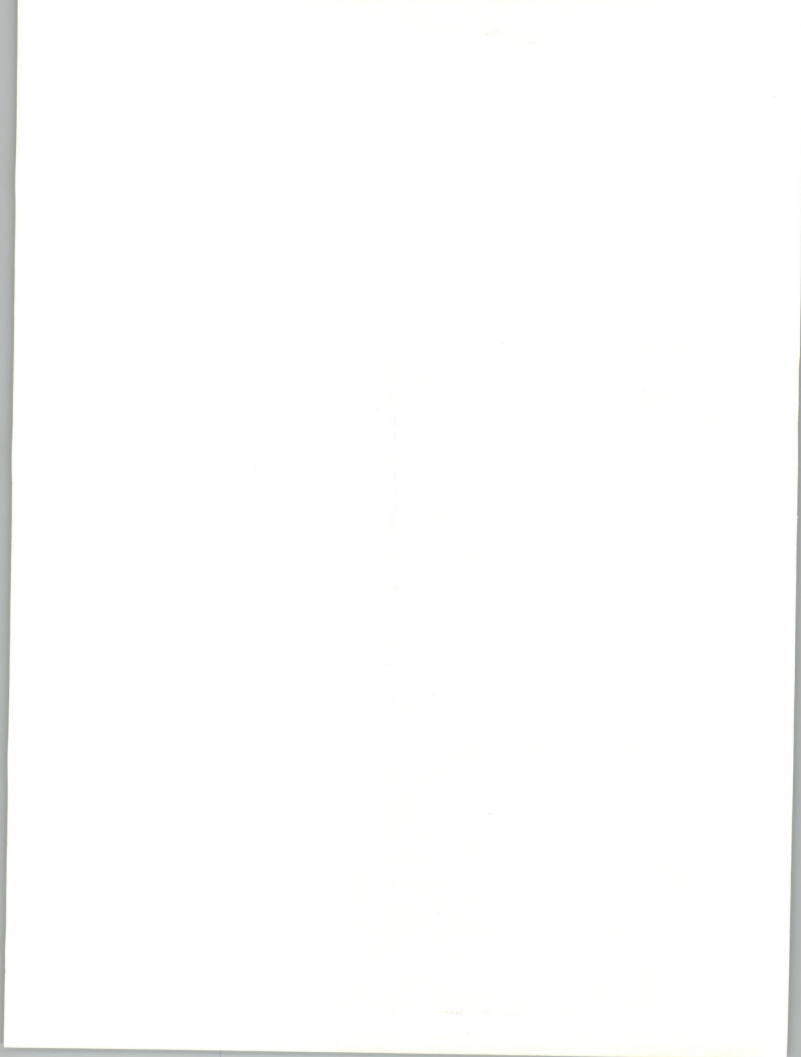
One ADP Boulevard
Roseland, NJ 07068
(201) 994-5000

Josh S. Weston, Chairman and CEO
William J. Turner, President
Public Corporation, NYSE
Total Employees: 20,000
Total Revenue, Fiscal Year End
6/30/88:

The Company

Automatic Data Processing, Inc. (ADP) was formed in 1949 as Automatic Payrolls Inc. Its name was changed to Automatic Data Processing in 1960. From 1949 to 1961, its payroll services were performed on unit record equipment. In 1961 ADP computerized its operations and went public.

Since the early 1960s ADP has implemented an active acquisition program to diversify from its primary business of providing payroll services. Payroll and accounting services still provide the major share of ADP's revenue; however, significant gains have been made in brokerage, banking, and thrift services, services to automotive dealers, and collision estimating services for the insurance industry. The company now provides information and processing services to nearly 200,000 clients worldwide.



AUTOMATIC DATA PROCESSING, INC.
THREE-YEAR SOURCE OF REVENUE SUMMARY
 (\$ Millions)

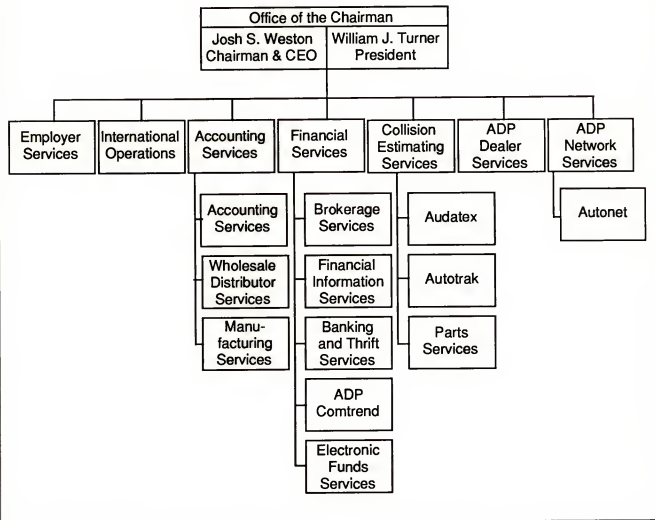
ITEM	FISCAL YEAR					
	6/88		6/87		6/86	
	REVENUE \$	PERCENT OF TOTAL	REVENUE \$	PERCENT OF TOTAL	REVENUE \$	PERCENT OF TOTAL
Employer Services	734	47	623	45	537	45
Accounting Services	103	7	97	7	114	9
Financial Services	424	27	402	29	310	26
Collision Estimating Services	73	5	69	5	45	4
Dealer Services	163	11	138	10	140	12
Network Services	52	3	55	4	58	4
TOTAL	1,549	100	1,384	100	1,204	100

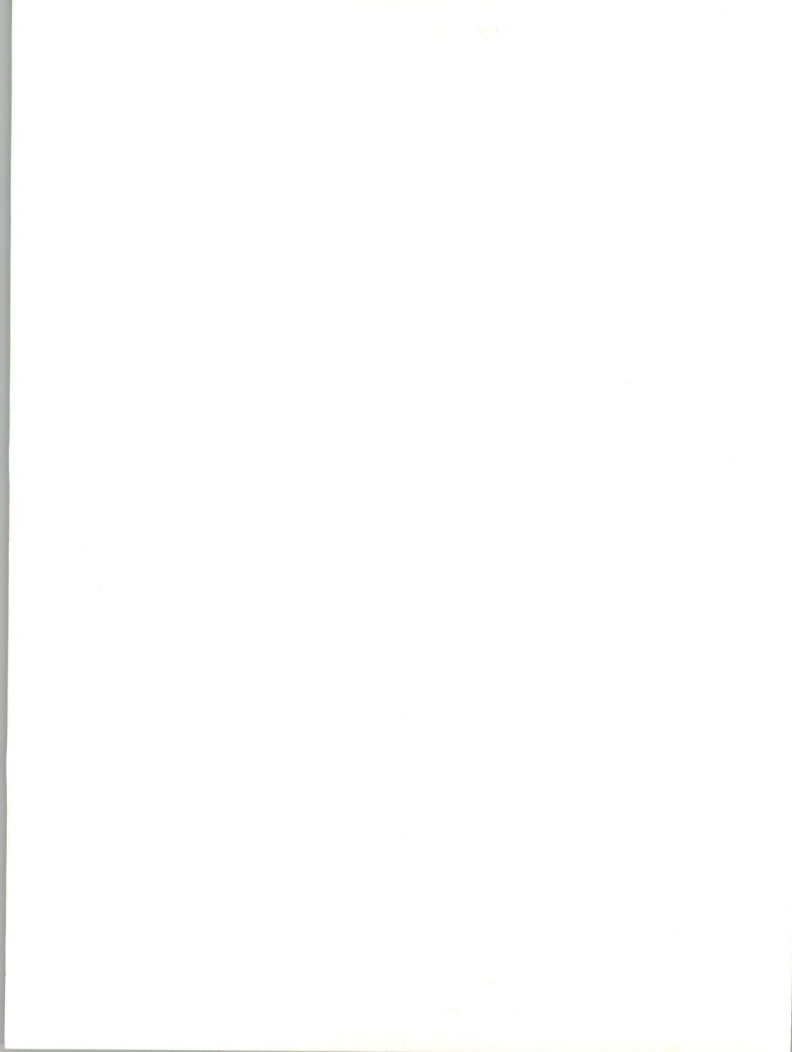
Approximately 95% of ADP's revenue was derived from U.S. operations.

Key Products and Services

ADP's principal accounting services are accounts receivable, accounts payable, and general ledger. These services are sold through batch, interactive, and on-site systems primarily to the services, manufacturing, and wholesaler/distributor industries throughout the U.S. and in Western Europe and Brazil.

- ADP's accounts receivable services include the preparation of client statements, accounts receivable schedules, agings, and related managerial reports. The accounts payable services are designed to keep track of paid and open invoices, prepare checks to the client's vendors, and prepare other reports designed to control the accounts payable function. ADP's financial statement preparation services consist of providing balancing journals, periodic general ledger, profit and loss statements, and balance sheets for clients. ADP's time accounting services provide computerized accounting of time spent on a per-job and per-employee basis.
- ADP's accounting services are organized in three business lines as follows:

ADP ORGANIZATION CHART



- Accounting Services provides generic accounts receivable, accounts payable, time analysis, and general ledger/financial reports. Well over 15,000 businesses used ADP generic accounting services in 1986. This client base now has the option to use client-site PCs connected to ADP regional centers' mainframe systems.
- Wholesale/Distributor Services provides real-time order entry, invoicing, accounting, and inventory services, and other front- and back-office applications for small-to-medium sized wholesalers and distributors. Nearly 1,000 wholesale/distribution clients, a 20% increase over 1985, now use ADP on-site systems. A specialized sales and service group has been established to work with these clients, whose annual sales typically range between \$2 million and \$100 million.
- Manufacturing Services provides accounting, planning, production control, and distribution services for small- to medium-sized manufacturers. As a result of the acquisition of ROI Systems, Inc., ADP offers Manage 2000, an integrated MRPII software product. More than 100 manufacturers currently use Manage 2000.

Geographic Markets

Approximately 95% of ADP's revenue is derived from U.S. operations, with the remainder from the United Kingdom, Western Europe, Canada, and Brazil.

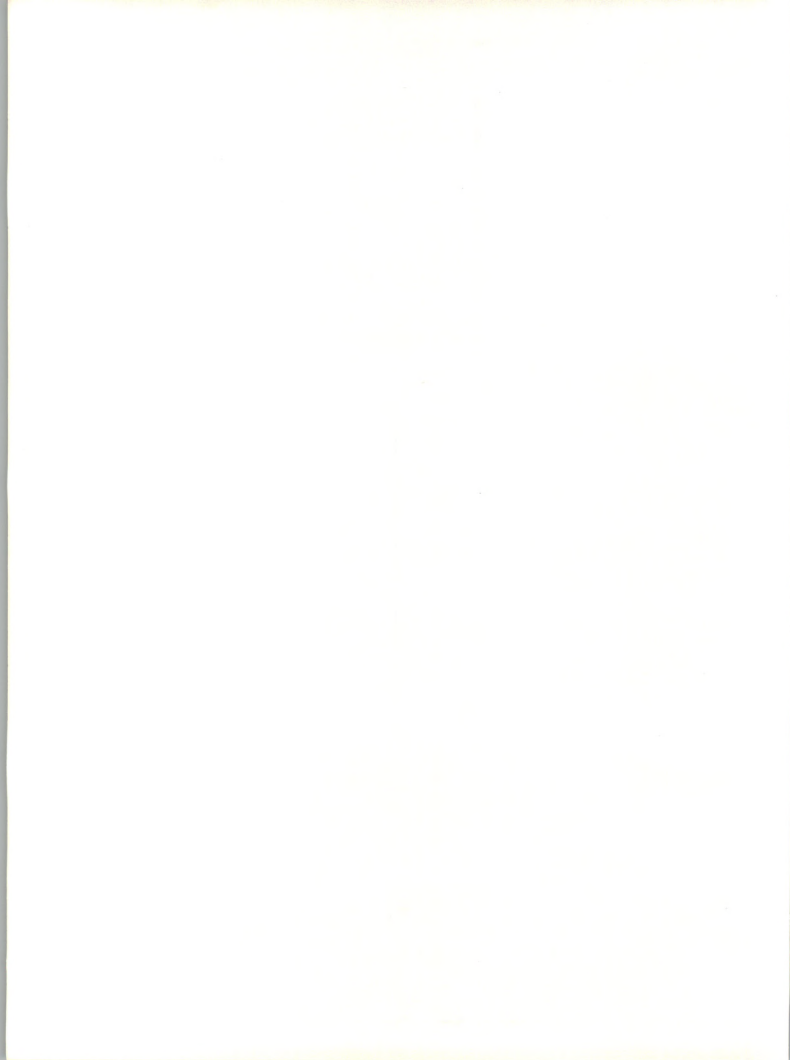
Computer Hardware

ADP uses more than 100 mainframes, exclusive of minicomputers, in its various data centers.

- ADP Network Services maintains its primary data center in Ann Arbor (MI). Equipment used to provide network services includes a large number of DEC System 10s and 20s and DEC VAXs.
- Employer and Accounting Services maintains about 45 data centers in various locations in the U.S. and Europe. Computer equipment installed is predominantly IBM 4300 systems and Magnuson mainframes.
- Financial Services maintains a new data center in New York City using primarily Amdahl and IBM systems.



- ADP Financial Information Services' data centers in Mt. Laurel (NJ) and Trumbull (CT) have primarily IBM and DEC VAX computers installed.
- Banking and Thrift Services data centers are in Chicago, Atlanta, Cherry Hill (NJ), and Houston. Equipment in the centers consists primarily of IBM 4300s and Magnuson mainframes.
- Dealer Services' primary data center, located in Schaumburg (IL), has Microdata computers installed.
- ADP Collision Estimating Services uses the Network Services data center in Ann Arbor to provide services to its clients.



COMPANY PROFILE

COLLIER-JACKSON, INC.

3707 West Cherry Street
Tampa, FL 33607
(813) 872-9990

Charles W. Jackson, President
Private Corporation
Total Employees: 135 10/87

The Company

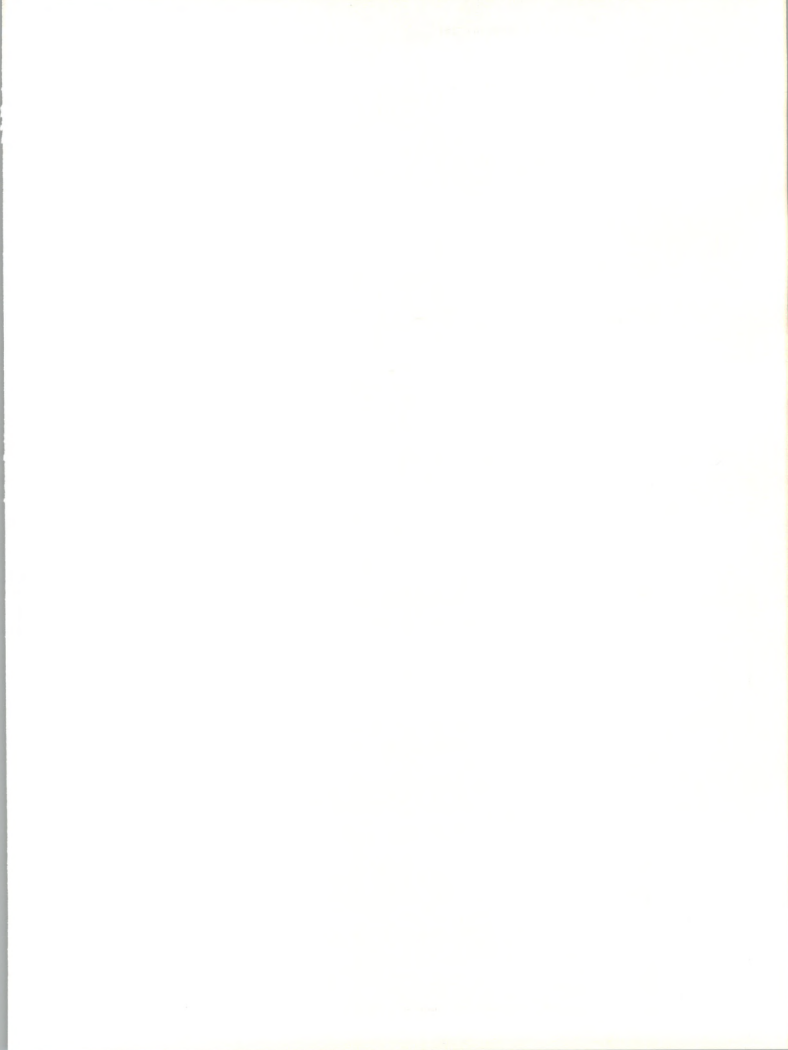
Collier-Jackson, Inc. was founded by Charles W. Jackson in 1975. The company develops, markets, and supports cross-industry software packages for financial, purchasing, and human resource management applications, as well as specific products for the newspaper industry. Collier-Jackson also provides professional services involving education, training, implementation assistance, and customization of its software packages

- For its newspaper systems, the company has agreements with Hewlett-Packard and DEC as follows:
 - Since 1976 Collier-Jackson has been an original equipment manufacturer (OEM) for Hewlett-Packard.
 - In 1983 the company became an OEM for DEC.
 - In 1987 Collier-Jackson became DEC's first Systems Cooperative Marketing Partner (SCMP) for the media industry.
- For its financial systems, the company has agreements as follows:
 - In 1986 Collier-Jackson was designated a National Account HP3000 Software Supplier.
 - In 1987 Collier-Jackson became a Cooperative Marketing Partner (CMP) with DEC.

Collier-Jackson was acquired by CompuServe in October 1987.

Key Products and Services

Approximately 60% of revenue was from software packages and 10% from professional services. The remainder was from hardware product sales and maintenance services.



PRODUCT	DESCRIPTION	PRICE	NUMBER INSTALLED
Financial Applications			
CJ/Advanced General Ledger	General ledger and financial reporting system	\$21,500	350
CJ/Accounts Payable	Expense management system	\$15,000	250
CJ/Accounts Receivable	Accounts receivable and cash forecasting system	\$15,000	100
CJ/Fixed Assets	Fixed assets and property management system	\$24,000	130
CJ/Purchasing	Vendor management procurement control & reporting system	\$15,000	New
CJ/Report Writer	Report writing system	\$7,500	225
CJ/Execulink	Provides download capabilities between mainframe-to-micro	\$2,000	100
Human Resource Applications			
CJ/Payroll	Payroll processing and reporting system	\$17,500	375
CJ/Personnel	Human resource management system	\$18,500	130
CJ/Employee Fund Administration	Employee fund tracking, recording and controlling system	\$7,500	30
Newspaper Management Systems			
CJ/Circulation	Information gathering system	\$45,000- \$115,000	130
CJ/Advertising	Advertising process integrating system	\$30,000- 95,000	120
CJ/Classified	Current information tracking system	\$6,500- \$22,000	100
CJ/Ad Tracking	Workflow reporting system	\$6,500- \$24,000	10
CJ/Layout	Dummied ad producing	\$9,500- \$18,000	30
CJ/Newsprint	Production cost tracking system	\$9,500- \$30,500	30

the 1990s, the number of people with a mental health problem has increased by 50% (Mental Health Foundation 2000). The prevalence of mental health problems has increased in the general population, and the incidence of mental health problems has increased in the prison population.

There is a growing awareness of the need to address the mental health needs of prisoners. The Department of Health (2000) has published a strategy for mental health services, which includes a commitment to improve the mental health of prisoners. The Department of Health (2000) has also published a strategy for mental health services, which includes a commitment to improve the mental health of prisoners.

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Collier-Jackson's products are available for the HP 3000 series (running under MPE) and the DEC VAX series (running under VMS) minicomputers.

There are over 2,000 systems installed nationwide.

Collier-Jackson provides education, training, and customer support services.

- Systems education classes are held at Collier-Jackson's corporate office in Tampa.
- The CJI HOTLINE is available to assist with emergency problems during business and nonbusiness hours.

Approximately 40% of the company's revenue was from the newspaper industry. The remaining 60% was derived from various industries.

Geographic Markets

One hundred percent of Collier-Jackson's revenue was from the U.S.

Sales offices are located in San Francisco, Los Angeles, Minneapolis, Boston, and New Jersey.

Computer Hardware and Software

Collier-Jackson has the following computers installed at its headquarters in Tampa:

- 1 DEC VAX 8500, VMS
- 2 HP 3000s, MPE-V
- 2 HP 3000-37s, MPE-V

Regional offices are each equipped with an HP 3000-37.

the 1990s, the number of people in the UK who are employed in the public sector has increased by 1.5 million, from 2.5 million in 1980 to 4 million in 1995. The public sector has become a major employer in the UK, and its growth has been a major factor in the overall growth of the economy.

The public sector has also become a major employer of women. In 1980, women made up 40% of the public sector workforce, and by 1995, this figure had risen to 50%. This increase in the number of women in the public sector has been a major factor in the overall increase in the number of women in the workforce.

The public sector has also become a major employer of young people. In 1980, young people made up 10% of the public sector workforce, and by 1995, this figure had risen to 20%. This increase in the number of young people in the public sector has been a major factor in the overall increase in the number of young people in the workforce.

The public sector has also become a major employer of people with disabilities. In 1980, people with disabilities made up 5% of the public sector workforce, and by 1995, this figure had risen to 10%. This increase in the number of people with disabilities in the public sector has been a major factor in the overall increase in the number of people with disabilities in the workforce.

The public sector has also become a major employer of people from ethnic minorities. In 1980, people from ethnic minorities made up 5% of the public sector workforce, and by 1995, this figure had risen to 10%. This increase in the number of people from ethnic minorities in the public sector has been a major factor in the overall increase in the number of people from ethnic minorities in the workforce.

The public sector has also become a major employer of people who are over 50 years old. In 1980, people over 50 years old made up 10% of the public sector workforce, and by 1995, this figure had risen to 20%. This increase in the number of people over 50 years old in the public sector has been a major factor in the overall increase in the number of people over 50 years old in the workforce.

The public sector has also become a major employer of people who are under 20 years old. In 1980, people under 20 years old made up 5% of the public sector workforce, and by 1995, this figure had risen to 10%. This increase in the number of people under 20 years old in the public sector has been a major factor in the overall increase in the number of people under 20 years old in the workforce.

The public sector has also become a major employer of people who are over 60 years old. In 1980, people over 60 years old made up 10% of the public sector workforce, and by 1995, this figure had risen to 20%. This increase in the number of people over 60 years old in the public sector has been a major factor in the overall increase in the number of people over 60 years old in the workforce.

COMPANY PROFILE

**COMPUTER ASSOCIATES
INTERNATIONAL, INC.**

711 Stewart Avenue
Garden City, NY 11530-4787
(516) 227-3300

Charles B. Wang, Chairman and CEO
Anthony W. Wang, President and COO
Public Corporation, NYSE
Total Employees: 4,469 (5/88)
Total Revenue, Fiscal Year End
3/31/88: \$709,109,000

The Company

Computer Associates International, Inc. (CAI) was incorporated in 1974 and commenced operations in 1976. As a result of ongoing internal development and numerous acquisitions, the company currently markets and supports more than 100 software products worldwide. CAI's product line includes systems software, relational data base management systems, and application software for use on mainframes, minicomputers, and microcomputers.

In September 1988 CAI announced that it agreed to acquire Applied Data Research, Inc. (ADR) from Ameritech for \$170 million.

- ADR, a provider of systems software products to cross-industry markets, had revenue of approximately \$172.9 million in 1987.
- Pending merger approval, ADR would be part of a new data base and programmer productivity unit within CAI's Application Products Division.

Fiscal 1988 revenue reached \$709.1 million, a 57% increase over fiscal 1987 revenue of \$452.3 million. Net income rose 103%, from \$50.2 million in fiscal 1987 to over \$101.8 million in fiscal 1988. In the five-year summary that follows, financials have been restated to include the pooling of interests acquisition of UCCEL Corporation, which was completed in August 1987.

COMPUTER ASSOCIATES INTERNATIONAL, INC.
FIVE-YEAR FINANCIAL SUMMARY
(\$ thousands, except per share data)

ITEM	FISCAL YEAR				
	3/88	3/87	3/86	3/85	3/84
Revenue	\$709,109	\$452,289	\$321,985	\$227,806	\$158,527
• Percent increase from previous year	57%	40%	41%	44%	N/A
Income before taxes and extraordinary items	\$170,086	\$94,812	\$56,302	N/A	N/A
• Percent increase from previous year	79%	68%	N/A	N/A	N/A
Net income	\$101,828	\$50,227	\$37,055	\$27,844	\$11,320
• Percent increase from previous year	103%	36%	33%	146%	N/A
Earnings per share (a)	\$1.29	\$0.66	\$0.42	\$0.30	\$0.17
• Percent increase from previous year	95%	57%	40%	76%	N/A

(a) Restated to reflect a 2-for-1 stock split effective May 7, 1987.

CAI management attributes the company's revenue growth to the licensing of greater numbers of products, both developed and acquired.

Product development costs charged to operations were approximately \$81.5 million (11% of revenue) in fiscal 1988, \$64.3 million (14% of revenue) in fiscal 1987, and \$58.1 million (18% of revenue) in fiscal 1986. In fiscal 1988 and 1987, CAI also capitalized \$7.9 million and \$7.1 million, respectively, of research and development costs.

Revenue for the three months ending June 30, 1988 reached \$185.7 million, a 33% increase over \$139.3 million for the same period in 1987. Net income for the period was \$16.9 million, an increase of 83% over \$9.2 million for the same period a year ago.

COMPUTER ASSOCIATES INTERNATIONAL, INC.
ACQUISITION SUMMARY

COMPANY	PRODUCT LINE	DATE ACQUIRED	PRICE (\$ millions)
Applied Data Research	Application development, data base management system, communication software	9/88	\$170
UCCEL Corporation	Mainframe systems and banking software	8/87	\$830 (stock)
L & L Software, Inc.	Micro-based cost accounting software	5/87	N/A
BPI Systems, Inc.	Micro accounting software	5/87	N/A
Mega Group	Mainframe spreadsheets	12/86	N/A
Integrated Software Systems Corp.	Graphics applications	12/86	\$67
Software International Corporation	Financial applications	12/86	\$24
Top Secret (CGA Computer product)	MVS security software	12/85	\$25
Management and Computer Services, Inc.	Programmer productivity software	10/85	N/A
Value Software, Inc.	Systems software	4/85	N/A
Basic Software Group	Micro applications	8/85	N/A
Arkay Computer, Inc.	MVS/VSE conversion software	8/84	N/A
Johnson Systems, Inc.	Job accounting software	6/84	\$16
Sorcim Corp.	Micro applications	5/84	\$26.5
Information Unlimited Software, Inc.	Micro applications	7/83	\$9.5
Stuart P. Orr and Associates, Inc.	Financial applications	2/83	N/A
Capex Corp.	Systems software	5/82	\$22 (stock)

CAI is organized into five divisions as follows:

- The Systems Products Division (SPD) markets and supports the company's systems software products in North America. In addition, there is a dedicated sales force for sales to federal government data centers and national accounts.
- The Applications Products Division (APD) markets and supports the company's financial applications, graphics, project planning, data base management systems, decision support, and programmer productivity software in North America. APD is organized into 20 regions.
- The Micro Products Division (MPD) markets the company's microcomputer software products in the U.S. and Canada. This division is organized into four regions served by 13 sales offices that market directly to distributors and dealers. MPD has dedicated corporate and direct sales forces that market the company's microcomputer products and support services to large corporate clients, OEMs, government clients, and educational institutions.
- The Far East Products Division (FPD) and European Products Division (EPD) serve as the distribution arms for SPD, APD, and MPD products outside North America. They oversee the company's subsidiaries in 20 foreign countries, as well as the company's independent distributors in those countries where CAI does not have its own operations.

As of May 31, 1988 CAI had approximately 4,469 employees, of which 810 were located at its headquarters in Garden City, 2,475 at other offices in the U.S., and 1,184 at offices in foreign countries. Employees are segmented by functional area as follows:

Sales and support	2,194
Product development	1,190
General and administrative	<u>1,085</u>
	4,469

CAI's major competitors, by product area, include the following:

- Systems software: IBM
- Application software: IBM, Management Science America, and McCormack & Dodge

- Microcomputer software: Lotus Development, DAC Software, and Peachtree

Key Products and Services

Approximately 77% of CAI's fiscal 1988 revenue was derived from software product licenses and 23% from maintenance fees. A three-year summary of source of revenue follows:

COMPUTER ASSOCIATES INTERNATIONAL, INC. THREE-YEAR SOURCE OF REVENUE SUMMARY (\$ millions)

	FISCAL YEAR					
	3/88		3/87		3/86	
ITEM	REVENUE \$	PERCENT OF TOTAL	REVENUE \$	PERCENT OF TOTAL	REVENUE \$	PERCENT OF TOTAL
Product Revenue	\$542.7	77%	\$366.0	81%	\$256.9	80%
Maintenance Fees	166.4	23%	86.3	19%	65.1	20%
TOTAL	\$709.1	100%	\$452.3	100%	\$322.0	100%

A further breakdown of fiscal 1988 revenue by division is estimated as follows:

Systems Products Division	44%
Applications Products Division	14%
Micro Products Division	8%
International Divisions	<u>34%</u>
	100%

CAI currently offers more than 100 software products. The company has over 8,500 mainframe and minicomputer product installations and has sold more than one million copies of its integrated accounting and productivity microcomputer software products.

**COMPUTER ASSOCIATES INTERNATIONAL, INC.
ACCOUNTING APPLICATION SOFTWARE PRODUCTS**

PRODUCT	DESCRIPTION	COMPATIBLE SYSTEMS
Masterpiece® Financial Management		
CA-ACCOUNTS PAYABLE®	Control and manage cash disbursements	MVS/VSE, S/38, /36, DEC, DG, UNISYS
CA-ACCOUNTS RECEIVABLE®	Customer account tracking and cash-management control	MVS/VSE, S/38, /36, DEC, DG, UNISYS
CA-FIXED ASSETS™	Asset control multiple depreciation rates system	MVS/VSE, S/38, /36, DEC, DG, UNISYS
CA-FUND ACCOUNTING SYSTEM™	Integrated realtime fund control for the not-for-profit community	MVS/VSE
CA-GENERAL LEDGER®	Comprehensive financial management and reporting	MVS/VSE, S/38, /35, DEC, DG, UNISYS
CA-HUMAN RESOURCES™	Personnel data base and data retrieval facilities for user-designed reports	S/38, /36, UNISYS, DEC
CA-INVENTORY CONTROL®	Inventory management and reporting	MVS/VSE, DG, DEC
CA-JOB COST®	Cost collection and reporting facility	MVS/VSE, DEC, Prime
CA-ORDER PROCESSING®	Entering, validating and recording sales	MVS/VSE, DEC
CA-PAYROLL/PERSONNEL™	Wages, deductions, paychecks and labor distribution facilities	S/38, /36, DEC, DG, UNISYS
CA-PURCHASING®	Full-cycle purchase order management and control	MVS/VSE, DEC, DG, UNISYS
MASTERPIECE® GRO	Graphics production software with CA-GENERAL LEDGER interface	MVS/DEC
MasterQuery™	Inquiry and reporting system for access to data in Masterpiece applications	MVS/VSE, S/38, /36, DEC
SmartLink™	Host-PC link for Masterpiece GL data	MVS/VSE, S/38, /36, DEC, UNISYS, PC and compatibles
ad-lib*	Inquiry and reporting system for access to Masterpiece and non-Masterpiece files	DEC
PerfectLink™	Host-to-PC link for Masterpiece/ABS products	MVS/VSE
IMAGINE**	Inquiry and reporting system for access to Masterpiece/ABS and non-Masterpiece/ABS files	MVS/VSE

the 1990s, the number of people in the world who are undernourished has increased from 600 million to 800 million (FAO 1996). The number of people who are malnourished has increased from 1.2 billion to 1.5 billion (FAO 1996).

There is a growing awareness of the need to improve the nutritional status of the world's population. The United Nations World Food Programme (WFP) has been established to help countries in need of food. The WFP has been successful in providing food to millions of people in need. However, the WFP has not been successful in improving the nutritional status of the world's population.

The World Health Organization (WHO) has been successful in improving the nutritional status of the world's population. The WHO has been successful in providing food to millions of people in need. However, the WHO has not been successful in improving the nutritional status of the world's population.

The United Nations Children's Fund (UNICEF) has been successful in improving the nutritional status of the world's population. The UNICEF has been successful in providing food to millions of people in need. However, the UNICEF has not been successful in improving the nutritional status of the world's population.

The World Bank has been successful in improving the nutritional status of the world's population. The World Bank has been successful in providing food to millions of people in need. However, the World Bank has not been successful in improving the nutritional status of the world's population.

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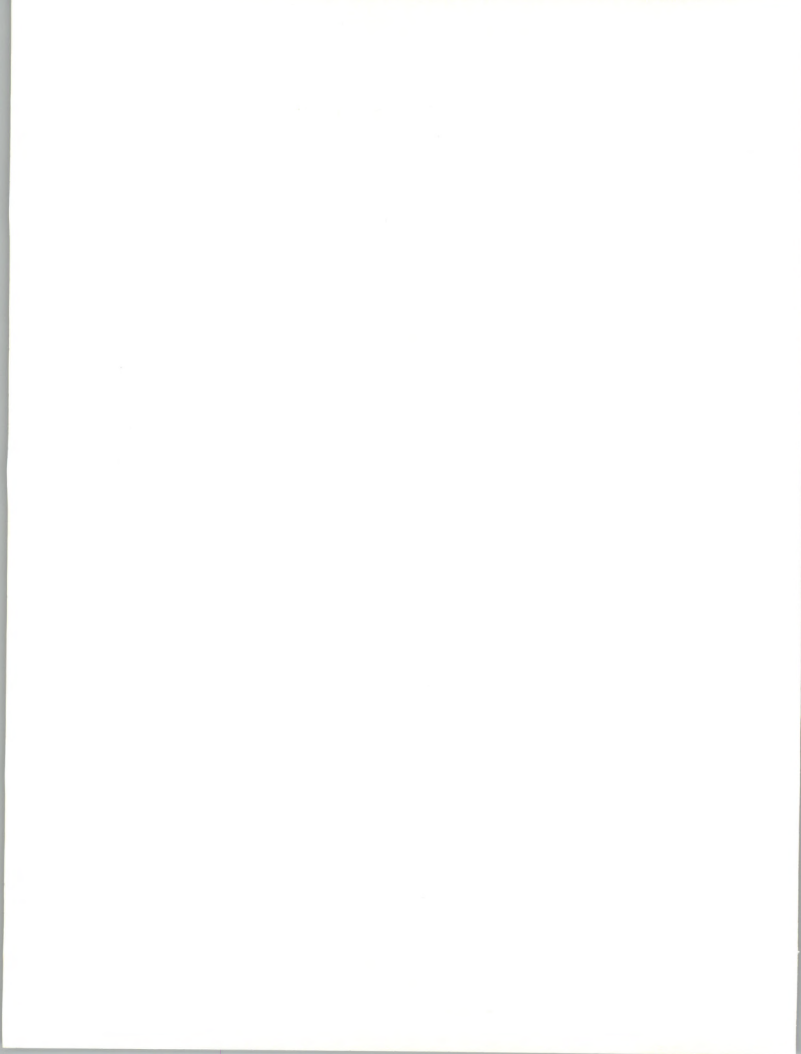
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**COMPUTER ASSOCIATES INTERNATIONAL, INC.
ACCOUNTING APPLICATION SOFTWARE PRODUCTS**

PRODUCT	DESCRIPTION
Accounting ACCPAC® PLUS (PCs and compatibles) General Ledger and Financial Reporter Accounts Receivable Accounts Payable Payroll Inventory Control and Analysis Order Entry Job Costing Estimating Retail Invoicing Time Billing & Client Receivables Sales Analysis EasyFiler® and Report Writer EasyWriter II® System Manager Windowing System LanPak™ Manager ACCPAC® Access System Manager/2	General ledger accounting and report generation Comprehensive receivables management and reporting Payables management, check printing and reconciliation, and distribution of disbursements Payroll computation, recordkeeping, payment and reporting Complete inventory management and reporting Order processing and reporting Cost tracking for any business that operates on a job or project basis Job estimates and bid preparation Point-of-sale automation of the entire retail invoicing process Time accounting, billing, and receivables management for service-oriented businesses Sales management reporting using data from order entry, accounts receivable and retail invoicing Custom report writer and file management Word processing, spelling correction, mail merge and line drawing Windowing for ACCPAC Plus modules Local area network manager for Novell, 3Com and IBM Networks Development tool kit for ACCPAC Plus series System manager for OS/2 operating system
ACCPAC BPI® Accounting (PCs and compatibles) General Accounting Accounts Receivable Accounts Payable LanPak™ Payroll Inventory Control	General ledger accounting plus financial reporting Receivables management Payables management Local area Network Manager for Novell, 3Com and IBM Networks Comprehensive payroll system Inventory management and reporting

(continued)



**COMPUTER ASSOCIATES INTERNATIONAL, INC.
ACCOUNTING APPLICATION SOFTWARE PRODUCTS**

PRODUCT	DESCRIPTION
ACCPAC® Easy (PCs and compatibles)	
General Accounting	Complete general ledger accounting plus subsidiary ledgers for accounts payable and accounts receivable
Payroll	Comprehensive payroll management
BPI Entry Series (Macintosh)	
General Accounting	Complete general ledger, accounting and financial software

In July 1988, CAI licensed the Proximity-Scan data comparison utility for inclusion in ACCPAC Plus Accounting Software.

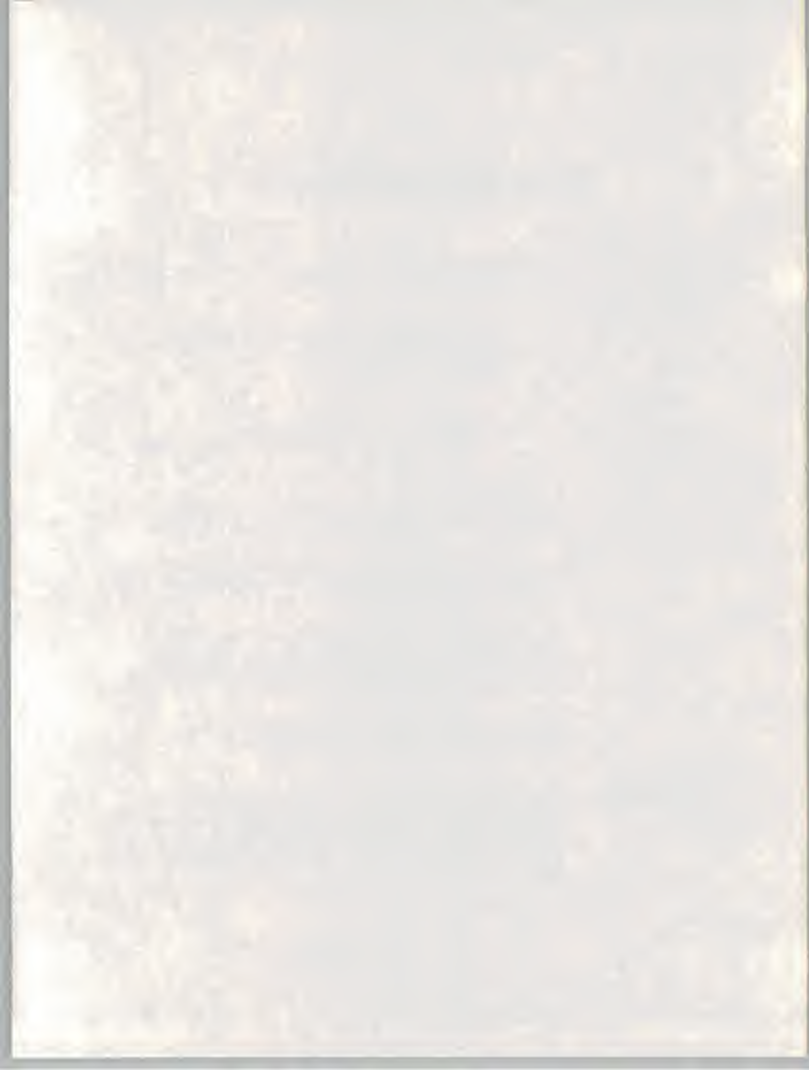
In August 1988, CAI launched its Professional Services Program offering corporate user training and consulting services on CAI's microcomputer-based applications.

Price Waterhouse has agreed to provide consulting services to Masterpiece series customers of CAI. The packages will be installed at PW's Applied Technology Center in Tampa, Florida, where consultants will be trained.

CAI has agreed to tailor its financial packages to Unisys computers. Unisys will then market the products.

Industry Markets

CAI's products are used by clients in the manufacturing, banking, insurance, retail, and education industries, as well as government agencies. More than 85% of the Fortune 500 largest U.S. industrial corporations use one or more of CAI's mainframe packages.



In the area of data base management systems, graphics, and applications software for the micro, mini, and mainframe computer, the customer base ranges from small business users to Fortune 500 companies.

Revenues from independent distributors accounted for less than 1% of CAI's fiscal 1988 revenue.

Geographic Markets

Approximately 61% of CAI's fiscal 1988 revenue was derived from the U.S. and Canada and 39% from Europe, Australia, and other international sources.

A three-year geographic financial summary follows:

**COMPUTER ASSOCIATES INTERNATIONAL, INC.
THREE-YEAR GEOGRAPHIC FINANCIAL SUMMARY
(\$ millions)**

ITEM	FISCAL YEAR					
	3/88		3/87		3/86	
	\$	PERCENT OF TOTAL	\$	PERCENT OF TOTAL	\$	PERCENT OF TOTAL
Revenue						
• U.S. and Canada (a)	\$429.8	61%	\$289.7	64%	\$227.4	71%
• Other foreign	<u>279.3</u>	<u>39%</u>	<u>162.6</u>	<u>36%</u>	<u>94.6</u>	<u>29%</u>
	\$709.1	100%	\$452.3	100%	\$322.0	100%
Income before taxes						
• U.S. and Canada	\$123.6	73%	\$70.8	75%	\$45.9	82%
• Other foreign	<u>46.5</u>	<u>27%</u>	<u>24.0</u>	<u>25%</u>	<u>10.4</u>	<u>18%</u>
	\$170.1	100%	\$94.8	100%	\$56.3	100%

- (a) Includes export sales to unaffiliated customers of approximately \$34.0 million, \$21.4 million, and \$14.2 million for fiscal 1988, 1987, and 1986, respectively.

Royalties from foreign subsidiaries were approximately \$89.1 million, \$37.0 million, and \$24.7 million for fiscal 1988, 1987, and 1986, respectively.

For each of the last two fiscal years, approximately 40% of CAI's revenue from mainframe products was derived from business outside North America. In fiscal 1986, this percentage was approximately 30%.

Western Europe is, by far, the company's most important foreign market.

CAI operates approximately 41 offices throughout the U.S. in addition to its headquarters in Garden City.

CAI operates over 50 foreign office facilities outside the U.S. Principal offices are located in Australia, Austria, Belgium, Brazil, Canada, Denmark, Finland, France, Holland, Hong Kong, Israel, Italy, Japan, New Zealand, Norway, Singapore, Spain, Sweden, Switzerland, the U.K., and West Germany.

**Computer
Hardware**

CAI has various computers from IBM, DEC, and Data General installed at centers in Garden City, San Diego, and Rosemont (IL) for internal product development, technical support, and administrative purposes.

the 1990s, the number of people with a diagnosis of schizophrenia has increased by 20% (Meltzer 1997).

There is a growing awareness of the need to address the needs of people with mental health problems, and the importance of the role of the community in this. The World Health Organization (WHO) has developed a number of initiatives to address the needs of people with mental health problems, and the importance of the role of the community in this. The WHO has developed a number of initiatives to address the needs of people with mental health problems, and the importance of the role of the community in this. The WHO has developed a number of initiatives to address the needs of people with mental health problems, and the importance of the role of the community in this.

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COMPANY PROFILE

CULLINET SOFTWARE, INC.

400 Blue Hill Drive
Westwood, MA 02090-2198
(617) 329-7700

John Cullinane, Chairman and CEO
Robert K. Weiler, President and COO
Public Corporation, NYSE
Total Employees: 2,100
Total Revenue, Fiscal Year End
4/30/88: \$216,653,000

The Company

Cullinet Software, Inc., founded in 1968, develops, markets, and supports data base management software; artificial intelligence software; application software for manufacturing, human resources, distribution, project tracking, banking, and finance applications; and information center management software products

In September 1986 Cullinet announced its "3x3 Architecture," the company's strategy for its future marketing efforts targeting three sets of products--data bases, development tools, and applications--over three hardware platforms--corporate mainframes, departmental computers, and microcomputers.

CULLINET SOFTWARE, INC.
FIVE-YEAR FINANCIAL SUMMARY (a)
 (\$ thousands, except per share data)

ITEM	FISCAL YEAR				
	4/88	4/87	4/86	4/85	4/84
Revenue	\$216,653	\$174,891	\$189,305	\$190,162	\$124,450
• Percent increase (decrease) from previous year	24%	(8%)	-	53%	53%
Income (loss) before taxes	\$(65,473)	\$(49,975)	\$24,145	\$44,182	
• Percent increase from previous year	-	-	(45%)	51%	43%
Net income (loss)	\$(47,021)	\$(27,616)	\$13,030	\$23,869	\$14,141
• Percent increase from previous year	-	-	(45%)	50%	43%
Earnings (loss) per share	\$(1.45)	\$ (0.86)	\$0.42	\$0.78	\$0.47
• Percent increase from previous year	-	-	(45%)	50%	35%

(a) Results for years prior to fiscal 1987 have been restated to reflect the pooling of interests acquisition of Distribution Management Systems in April 1987.

Acquisitions made by Cullinet during 1986 and 1987 include the following:

- In April 1987 Cullinet acquired Distribution Management Systems, Inc. (DMS) of Lexington (MA) for approximately 1.7 million shares of Cullinet common stock. The acquisition has been accounted for as a pooling of interests.
- DMS provides distribution management software products and Application Expert, an expert system application development tool.
- DMS had approximately 100 employees at the time of the acquisition.
- DMS had revenue of \$5.8 million and losses of \$4.3 million for the fiscal year ending April 30, 1987 (restated).
- DMS now operates as a wholly owned subsidiary of Cullinet.
- In March 1987 Cullinet acquired a fixed assets system from

Computer Associates International for \$440,000. The system has been customized by Cullinet to run with IDMS/R.

- In December 1986 Cullinet acquired Applied Development Corporation (ADC) of Delaware. Terms of the acquisition were not disclosed.
 - ADC specializes in application development software.
 - ADC had approximately 20 employees at the time of the acquisition. Its operations have been merged into Cullinet.
- In December 1986 Cullinet acquired Planning Control International (PCI) of Newport Beach (CA). Terms of the acquisition were not disclosed.
 - PCI provides project management, government reporting, and financial tracking application software products for large manufacturers.
 - PCI had approximately 30 employees at the time of the acquisition.
 - The operations of PCI have been merged into Cullinet.
- In August 1986 Cullinet completed the purchase of Computer Strategies, Inc. (CSI) of Grand Rapids (MI) for approximately \$2.8 million. Cullinet had originally purchased 15% of CSI in December 1985.
 - CSI provides repetitive manufacturing application software products and associated consulting services.
 - CSI had approximately 35 employees at the time of the acquisition.
 - CSI now operates as a wholly owned subsidiary of Cullinet.
- In July 1986 Cullinet acquired Esvel, Inc. of San Jose (CA) for \$8.4 million.
 - Esvel is a developer of SQL-driven relational data base products for minicomputers and microcomputers.
 - Esvel had approximately 20 employees at the time of the acquisition.
- The total purchase price for the Esvel, CSI, PCI, and ADC

acquisitions was \$22.7 million.

- In June 1986 Cullinet acquired an international general ledger system from a non-U.S. software developer.
- In April 1986 Cullinet acquired a performance monitor product (Run Time Evaluator) from Business Software Technology, Inc. The system was incorporated into Cullinet's product line and introduced in June 1986 as IDMS/R Performance Monitor.

During the fourth quarter of fiscal 1988 Cullinet announced the divestiture of the two subsidiaries PCI and CSI.

Key Products and Services

CULLINET SOFTWARE, INC. THREE-YEAR SOURCE OF REVENUE SUMMARY (\$ thousands)

ITEM	FISCAL YEAR					
	4/88		4/87		4/86	
	REVENUE \$**	PERCENT OF TOTAL	REVENUE \$	PERCENT OF TOTAL	REVENUE \$	PERCENT OF TOTAL
Data Base Management Products	\$152,000	70%	\$107,769	62%	\$133,032	70%
Application Products	65,000	30%	55,221	32%	40,692	22%
Information Center Products	*	*	11,901	6%	15,581	8%
TOTAL	\$217,000	100%	174,891	100%	\$189,305	100%

* Combined with data base management products

** Estimated

Cullinet currently has over 24,000 software product installations in over 60 countries worldwide. The products fall into three categories: data base management, applications, and information center (including microcomputer software). Applications represent 30% of revenue worldwide and about half of domestic sales

CULLINET APPLICATION SOFTWARE PRODUCTS

[illegible]

Cullinet provides industry-specific software products for manufacturing, distribution, and banking applications as well as cross-industry products for project tracking, human resources, and financial applications.

Cullinet began marketing applications software in 1981. The company rewrites, modifies, and enhances the products it acquires and fully integrates them with its IDMS/R product line.

The Cullinet Financial System is an on-line accounting and financial and reporting system. Modules include: General Ledger, Purchasing, Accounts Payable, Order Entry, Accounts Receivable, Inventory Control, Fixed Assets, and Funds Accounting.

A fixed-asset management system was acquired from Computer Associates that supports construction in process, preventive maintenance, lease control, asset location, and insurance control applications.

Support services provided by Cullinet through its Account Management Program include implementation planning and assistance, technical advice, hands-on education and training courses, video-based education programs, 24-hour telephone support, and direct access to Cullinet's technical data base through Info-TSIS for updates, software maintenance, and enhancements.

- Cullinet has an Extended Support Division for customized or longer term consulting assistance.
- Education centers are located in Atlanta, Boston, Chicago, Cleveland, Denver, Houston, Los Angeles, Montreal, New York, Ottawa, Philadelphia, San Francisco, Toronto, and Washington, D.C.

Geographic Markets

A three-year summary of source of revenue by geographic area follows:

**CULLINET SOFTWARE, INC.
THREE-YEAR SOURCE OF REVENUE SUMMARY
(\$ millions)**

ITEM	FISCAL YEAR					
	4/88		4/87		4/86	
	REVENUE \$	PERCENT OF TOTAL	REVENUE \$	PERCENT OF TOTAL	REVENUE \$	PERCENT OF TOTAL
U.S.	\$146.0	67%	\$132.2	76%	\$140.1	74%
Foreign	70.7	33%	42.7	24%	49.2	26%
TOTAL	\$216.7	100%	\$174.9	100%	\$189.3	100%

Cullinet has more than 24,000 product installations in 60 countries throughout the world.

- U.S. offices are located in Albany, Atlanta, Baltimore, Boston, Charlotte (NC), Chicago, Cincinnati, Clark (NJ), Cleveland, Columbus (OH), Dallas, Denver, Des Moines, Detroit, Harrisburg, Houston, Indianapolis, Kansas City, Los Angeles, Milwaukee, Minneapolis, Nashville, New York City, Omaha, Orlando, Philadelphia, Pittsburgh, Rochester (NY), St. Louis, San Diego, San Francisco, San Jose, Seattle, Tulsa, Washington, D.C., and West Hartford.



- Seven U.S. offices were closed in fiscal 1988.
- Cullinet foreign subsidiaries or affiliates are located in Argentina, Australia, Belgium, Canada, France, Germany, Hong Kong, South Korea, the Netherlands, New Zealand, Norway, Switzerland, the United Kingdom, and the United Arab Emirates.
- Cullinet has distributors in an additional 22 countries worldwide.

Computer Hardware and Software

Cullinet has the following computers installed at its data center in Westwood:

- 1 IBM 3090-200, MVS/XA
- 1 IBM 3084QX, MVS/XA
- 1 IBM 3081K, MVS/XA
- 1 IBM 3033, MVS
- 1 IBM 4381, MVS/XA
- 1 NAS AS/8023, OS/VSI, VM, CMS, DOS/VSE
- 1 DEC VAX-11/750, VMS

Cullinet-BWCS Software has an IBM 4341, Model 2, operating under MVS, installed at its Oakbrook offices.

Clients access CYBERTEK's data center via direct dial or leased lines.

COMPANY PROFILE

DATA DESIGN ASSOCIATES, INC.

1279 Oakmead Parkway
Sunnyvale, CA 94086
(408) 730-0100

David D. Lowry, President
Private Corporation
Total Employees: 120
Total Revenue, Fiscal Year End
3/31/88: \$17,010

The Company

Data Design Associates, Inc., founded in 1973 by David Lowry, develops and markets software products for fixed asset accounting, accounts payable/purchasing, general ledger financial control, and project accounting.

**DATA DESIGN ASSOCIATES
FIVE-YEAR FINANCIAL SUMMARY
(\$ thousands, except per share data)**

ITEM	FISCAL YEAR				
	3/88	3/87	3/86	3/85	3/84
Revenue	\$17,010	\$16,140	\$12,610	\$10,761	\$7,022
• Percent increase from previous year	5%	28%	17%	53%	36%
Income before taxes	3,645	3,556	2,808	2,182	1,606
• Percent increase (decrease) from previous year	3%	27%	29%	36%	18%
Net Income	2,320	2,069	1,575	1,271	1,004
• Percent increase (decrease) from previous year	12%	31%	24%	27%	18%

More than 90% of the company's employees are shareholders.

Key Products and Services

Over 90% of Data Design Associates' revenues is derived from application software products and associated support services; the remainder is from consulting professional services.

A two-year summary of source of revenue follows:

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279	280	281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300	301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	316	317	318	319	320	321	322	323	324	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	342	343	344	345	346	347	348	349	350	351	352	353	354	355	356	357	358	359	360	361	362	363	364	365	366	367	368	369	370	371	372	373	374	375	376	377	378	379	380	381	382	383	384	385	386	387	388	389	390	391	392	393	394	395	396	397	398	399	400	401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420	421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440	441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460	461	462	463	464	465	466	467	468	469	470	471	472	473	474	475	476	477	478	479	480	481	482	483	484	485	486	487	488	489	490	491	492	493	494	495	496	497	498	499	500	501	502	503	504	505	506	507	508	509	510	511	512	513	514	515	516	517	518	519	520	521	522	523	524	525	526	527	528	529	530	531	532	533	534	535	536	537	538	539	540	541	542	543	544	545	546	547	548	549	550	551	552	553	554	555	556	557	558	559	560	561	562	563	564	565	566	567	568	569	570	571	572	573	574	575	576	577	578	579	580	581	582	583	584	585	586	587	588	589	590	591	592	593	594	595	596	597	598	599	600	601	602	603	604	605	606	607	608	609	610	611	612	613	614	615	616	617	618	619	620	621	622	623	624	625	626	627	628	629	630	631	632	633	634	635	636	637	638	639	640	641	642	643	644	645	646	647	648	649	650	651	652	653	654	655	656	657	658	659	660	661	662	663	664	665	666	667	668	669	670	671	672	673	674	675	676	677	678	679	680	681	682	683	684	685	686	687	688	689	690	691	692	693	694	695	696	697	698	699	700	701	702	703	704	705	706	707	708	709	710	711	712	713	714	715	716	717	718	719	720	721	722	723	724	725	726	727	728	729	730	731	732	733	734	735	736	737	738	739	740	741	742	743	744	745	746	747	748	749	750	751	752	753	754	755	756	757	758	759	760	761	762	763	764	765	766	767	768	769	770	771	772	773	774	775	776	777	778	779	780	781	782	783	784	785	786	787	788	789	790	791	792	793	794	795	796	797	798	799	800	801	802	803	804	805	806	807	808	809	810	811	812	813	814	815	816	817	818	819	820	821	822	823	824	825	826	827	828	829	830	831	832	833	834	835	836	837	838	839	840	841	842	843	844	845	846	847	848	849	850	851	852	853	854	855	856	857	858	859	860	861	862	863	864	865	866	867	868	869	870	871	872	873	874	875	876	877	878	879	880	881	882	883	884	885	886	887	888	889	890	891	892	893	894	895	896	897	898	899	900	901	902	903	904	905	906	907	908	909	910	911	912	913	914	915	916	917	918	919	920	921	922	923	924	925	926	927	928	929	930	931	932	933	934	935	936	937	938	939	940	941	942	943	944	945	946	947	948	949	950	951	952	953	954	955	956	957	958	959	960	961	962	963	964	965	966	967	968	969	970	971	972	973	974	975	976	977	978	979	980	981	982	983	984	985	986	987	988	989	990	991	992	993	994	995	996	997	998	999	1000	1001	1002	1003	1004	1005	1006	1007	1008	1009	1010	1011	1012	1013	1014	1015	1016	1017	1018	1019	1020	1021	1022	1023	1024	1025	1026	1027	1028	1029	1030	1031	1032	1033	1034	1035	1036	1037	1038	1039	1040	1041	1042	1043	1044	1045	1046	1047	1048	1049	1050	1051	1052	1053	1054	1055	1056	1057	1058	1059	1060	1061	1062	1063	1064	1065	1066	1067	1068	1069	1070	1071	1072	1073	1074	1075	1076	1077	1078	1079	1080	1081	1082	1083	1084	1085	1086	1087	1088	1089	1090	1091	1092	1093	1094	1095	1096	1097	1098	1099	1100	1101	1102	1103	1104	1105	1106	1107	1108	1109	1110	1111	1112	1113	1114	1115	1116	1117	1118	1119	1120	1121	1122	1123	1124	1125	1126	1127	1128	1129	1130	1131	1132	1133	1134	1135	1136	1137	1138	1139	1140	1141	1142	1143	1144	1145	1146	1147	1148	1149	1150	1151	1152	1153	1154	1155	1156	1157	1158	1159	1160	1161	1162	1163	1164	1165	1166	1167	1168	1169	1170	1171	1172	1173	1174	1175	1176	1177	1178	1179	1180	1181	1182	1183	1184	1185	1186	1187	1188	1189	1190	1191	1192	1193	1194	1195	1196	1197	1198	1199	1200	1201	1202	1203	1204	1205	1206	1207	1208	1209	1210	1211	1212	1213	1214	1215	1216	1217	1218	1219	1220	1221	12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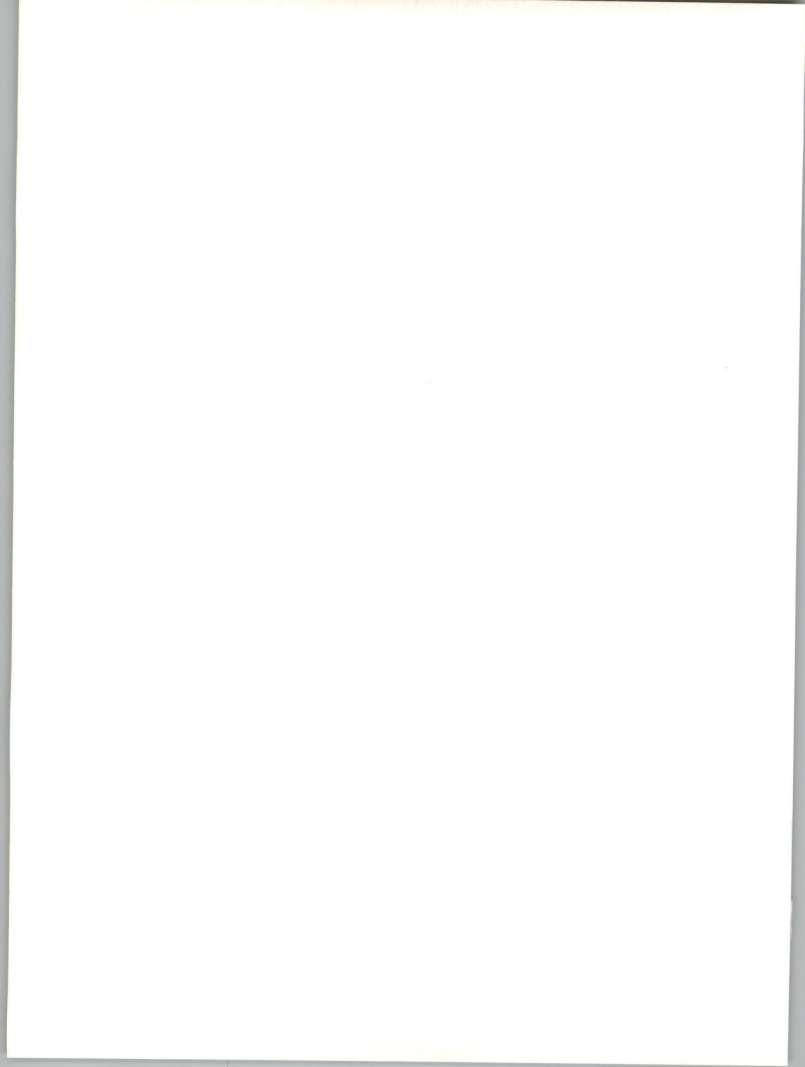
DATA DESIGN ASSOCIATES, INC.
TWO-YEAR SOURCE OF REVENUE SUMMARY
(\$ thousands)

ITEM	FISCAL YEAR			
	3/88		3/87	
	REVENUE \$	PERCENT OF TOTAL	REVENUE \$	PERCENT OF TOTAL
Software products	\$9,532	56%	\$10,679	66%
Software maintenance	6,688	39%	4,825	30%
Professional services	790	5%	636	4%
TOTAL	\$17,010	100%	\$16,140	100%

The Fixed Asset, Accounts Payable/Purchasing, General Ledger, and Project Accounting systems are written in ANSI COBOL and run primarily on IBM mainframes. The products are on-line, real time.

The Fixed Asset Accounting System (with ACRS and TEFRA), introduced in 1974, controls depreciation expenses, completes required tax forms, and manages corporate property.

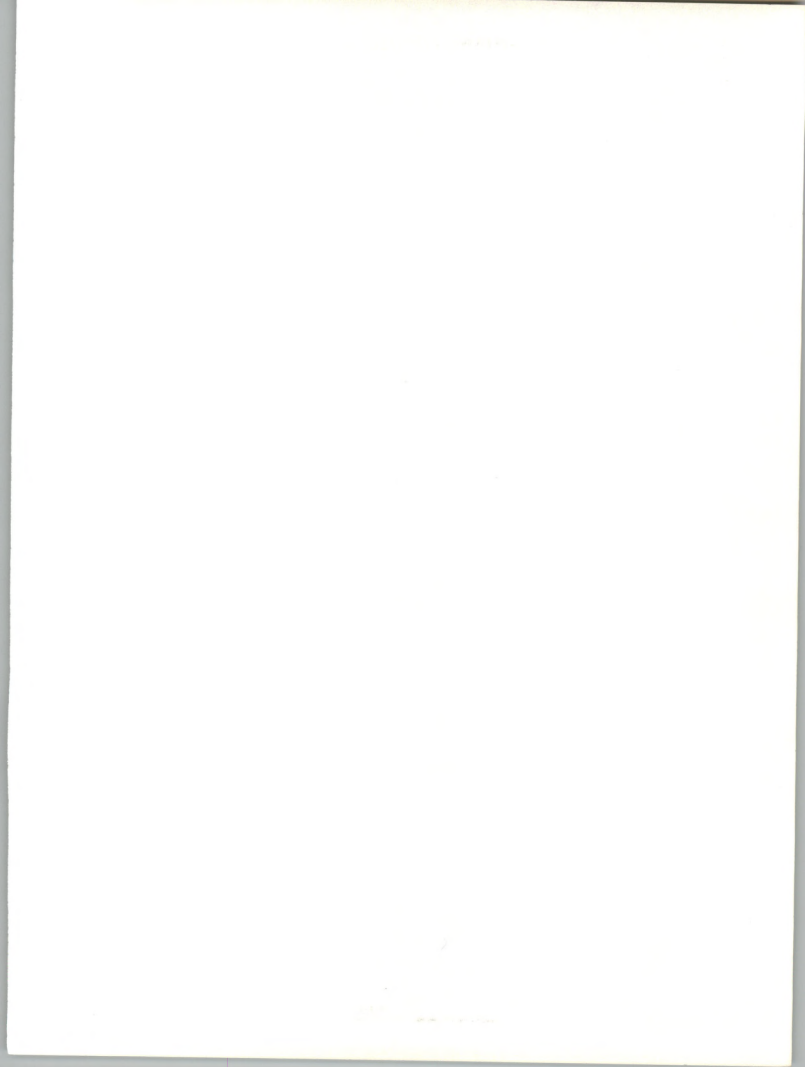
- Features include:
 - Multicompany processing
 - All methods for depreciation projection
 - Four independent ledgers for corporate, federal, and state tax reporting
 - Partial retirements
 - Single, partial, and mass asset transfers
 - Investment tax credit and energy credit calculations
 - Gain/loss calculations at retirement
 - Maintenance data
 - Leased asset data
 - User defined reports



- Optional modules include:
 - On-line entry and inquiry
 - Generalized Report Writer (GRW) for customized reports
 - Advanced ADR capability for calculating depreciation
 - FASB-33 Inflation Accounting
 - FASB-13 Reporting
 - Extended General Ledger interface
 - DD-LINK, which allows users to download data to a microcomputer
- Perpetual license fees range from \$40,000 to \$95,000, depending on options chosen and hardware used.
- There are over 400 installations of the Fixed Accounting System. Customers include Adolph Coors Company, Advanced Micro Devices, Aluminum Company of America, Amdahl Corporation, Apple Computer, Charter Medical Corporation, Coca-Cola Bottling Company, General Electric, Greyhound Corporation, May Company Department Stores, Mellon Bank, The Pillsbury Company, Reynolds Metals Company, State of New York, and Toys "R" Us.

The Accounts Payable/Purchasing System, introduced in 1976, is a system for the management of purchasing, receiving, and paying.

- Features include:
 - Multicompany processing
 - Cash management and invoice payment control
 - Edits and balancing controls for payments and accounting entries
 - User-defined reporting
 - Interfaces to general ledger, cost accounting, and inventory
 - Employee expense tracking
 - Use tax calculating and posting
- Optional modules include:
 - EDI, Electronic Data Interchange

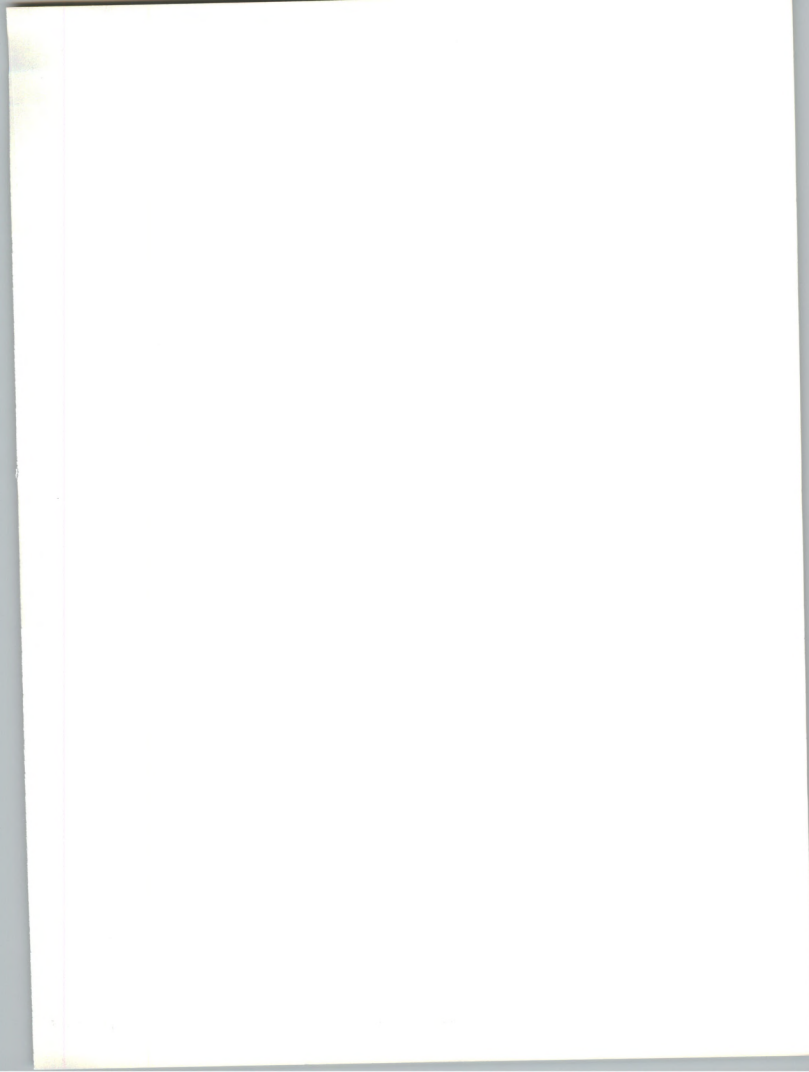


- The Purchase Control Module allows for two- and three-way match between invoice, purchase order, and receiving information. In addition, purchasing users have the ability to:
 - Process and track purchase requisitions
 - Print purchase and change orders
 - Handle blanket and multishipment orders
 - Automatically track receipts and back orders
 - Show order status on-line
- A Generalized Report Writer.
- The Accounts Payable base system licenses for \$80,000 to \$176,000, depending on options selected and hardware used.
- There are more than 300 installations of the product. Customers include Ameritrust Company, B. Dalton, Bristol-Myers, British Columbia Telephone Co., Cessna Fluid Power, Cigna Corporation, Gap Stores, General Electric, Konica Business Machines, Lutheran General Hospital, Merrill Lynch Realty, Northrop Corporation, Sanwa Bank of California, Searle Pharmaceuticals, Security Pacific National Bank, Warner-Lambert Company, and Washington Natural Gas.

The General Ledger Financial Control System, introduced in September 1983, provides capabilities for maintaining a financial data base and producing financial reports. Features include an Automatic Interface Module (DD-AIM) for interaction with purchasing, cost accounting, accounts payable, and inventory; and Statement Analysis Reporting (DD-STAR) which provides capabilities similar to spreadsheets.

- Other capabilities include:
 - Multicompany capabilities
 - On-line data entry and inquiry
 - Ability to consolidate dissimilar charts of accounts
 - User-defined account identification
 - Ability to post to current year without closing the prior year
 - Budgeting and forecasting
 - Foreign currency translation
 - Automatic Interface Module (DD-AIM) Statement
- The system is priced from \$75,000 to \$147,000, depending upon hardware and options. Approximately 100 systems have been installed.





- Customers include American Industries, Bankers Trust Company, Boise Cascade, Coca-Cola Bottling Company, Franklin Mint, Hickory Farms, Kaiser Foundation Health Plan, Mastercard International, Northrop Corporation, Ohio Edison, and Saif Corporation.

The Project Accounting (PA) system, introduced in 1985, monitors the progress of construction projects and other large expenditure programs to ensure the allocation of funds is expended within the budget framework. Upon completion of a project or a project phase, the system will translate expenditure data into user-defined fixed asset accounts.

- PA functions in a real-time, on-line mode or batch mode and can be integrated with other financial systems.
- The system licenses for \$27,000 to \$91,500, depending upon hardware configuration. Over 50 systems have been installed. Customers include Browning-Ferris Industries, IBP, Inc., Peoples Natural Gas, Pillsbury Company, Proctor and Gamble, and Warner-Lambert Company.

Data Design provides installation assistance, customer training, and one year of maintenance and telephone consultation included in the license fee. New options include Direct Dial Support and a 24-hour support hotline.

Professional services available from Data Design include consulting for modifications, productivity analysis, and upgrades.

Product development is currently underway for accounts receivable, order entry, and inventory control systems, as well as microcomputer products.

DD-PAINT, a microcomputer tool for changing and/or defining mainframe on-line screens, is scheduled for availability in 1988.

Data Design plans to produce a totally integrated product line based on COBOL, SQL and use of workstations interfacing with mainframes. Financial packages will be able to run in a variety of environments from mainframe to mini to PC/workstation with transfer facilities among them.

Industry Markets

Data Design's products are cross-industry applications targeted to large multicompany firms, primarily in the manufacturing, banking and finance, retail distribution, and transportation industries.

**Geographic
Markets**

Over 95% of Data Design's revenues are from the U.S. The remainder are from Canada.

**Computer
Hardware and
Software**

Data Design has an HP 3000, operating under MPE-III, and an IBM 4381, operating under MVS/SP, installed for use in product development.

COMPANY PROFILE

GLOBAL SOFTWARE, INC.

1009 Spring Forest Road
Raleigh, NC 27615
(919) 872-7800
(800) 334-7192

Ron Kupferman, President
Wholly Owned Subsidiary of
Hathaway Corporation
Total Employees: 200
Total Revenue, Fiscal Year End
6/30/88: \$23,000,000

The Company

Global Software, Inc. develops, markets, and supports IBM-based accounting application software products for clients across industries, as well as vertical software products for the health-care industry. The company also provides various professional services in support of its products.

- Global Software was formed in 1981 by a group of former Informatics General employees that purchased the rights to Informatics' cross-industry accounting application software packages.
- In 1983 Global Software was acquired by Storage Technology Corporation for \$14 million. In October 1983, Global-Ultimacc Systems, Inc. was formed as a result of the acquisition and merging of Global Software into Ultimacc Systems, Inc. (Boulder, CO), a partially owned subsidiary of Storage Technology.
- In May 1985 Global was acquired by Hathaway Corporation (Denver, CO) for \$6.9 million in cash and notes and renamed Global Software, Inc.

Global Software's fiscal 1988 revenue reached an estimated \$23 million, a 13% increase over fiscal 1987 revenue of \$20 million. A four-year revenue summary follows:

GLOBAL SOFTWARE, INC.
FOUR-YEAR REVENUE SUMMARY
 (\$ millions)

ITEM	FISCAL YEAR			
	6/88	6/87	6/86	6/85
Revenue	\$23.0	\$20.0	\$13.0	\$9.0
• Percent increase from previous year	13%	54%	44%	N/A

Global Software management estimates the average pretax income for the past three years to be approximately 17%.

In December 1985 Global Software acquired the commercial segment of the Application Products Division of UCCEL for an estimated \$3 million in cash and notes.

- The sale included five application packages--accounts receivable, fixed assets, general ledger, accounts payable, and a tax program, as well as customer support facilities in Dallas and Chicago, approximately 80 UCCEL employees, and about 1,000 UCCEL customers under maintenance contracts.
- Global Software has integrated these products into its product line.

In July 1988 Global Software established a Professional Services Division to provide customized versions of its software products.

Global Software currently has approximately 200 employees, segmented as follows:

Marketing/sales	30
Software services and customer support	85
General and administrative	35
Technical development	<u>50</u>
	200

Major competitors include Management Science America, McCormack & Dodge, and Computer Associates.

Key Products and Services

Global Software derives approximately 85% of its revenue from software products (70% license fees and 30% maintenance fees). The remaining 15% of revenue is derived from associated support services, such as software installation, consulting, and education and training.

Global Software's accounting software products can operate individually or as an integrated system. The company currently has over 2,500 product installations used by about 1,200 customers.

- The products operate on IBM 43xx, 30xx, 937x, and compatible mainframes under DOS/VSE, MVS/SP, MVS/XA, CICS, IBM System 36 and System 38 minicomputers, and AS/400 systems.
- Global/38 is an integrated financial control system for the IBM System 38 that includes modules for general ledger, financial analysis, profit planning and forecasting, accounts receivable, cost control, accounts payable, purchase order, and fixed asset accounting applications.
- The Cooperative Processing System, announced in July 1987, consists of microcomputer versions of Global Software's mainframe products that relate to mainframe information via standard data transfer links. To date, a module for Budgeting has been released and modules for Travel & Expenses are under development.
- The company's current product offerings are shown in the exhibit.

Global Software offers S*W*A*T (Software Walkthrough), a program designed to implement its products. Installation of software and training of personnel is usually accomplished within 30 to 90 days, depending on the client's environment.

- The S*W*A*T approach consists of several phases:
 - Pre-S*W*A*T I: Global Software staff comes on-site to review the company's requirements.
 - Pre-S*W*A*T II: A second consulting session is held on-site to review and validate converted data.

GLOBAL SOFTWARE, INC.

SOFTWARE PRODUCTS

PRODUCT	NUMBER INSTALLED
Global General Ledger and Financial Reporting	850
Global Accounts Payable	325
Global Purchase Order	45
Global Credit and Accounts Receivable Management System	335
Global Fixed Assets	300
Global Integrated Cost Control System	29
Global Healthcare Management Accounting System	40
Global Hospital Material Management System	7
Global Job Cost Control System	8
Global Integrated Sales, Distribution, and Purchasing Management System	20
Global Link (micro to mainframe link)	10
Global View (reporting and inquiry facility)	40
Global/38	250
Cooperative Processing System - Budgeting	15

- S*W*A*T Workshop: Clients attend a five-day training session conducted at one of Global Software's S*W*A*T centers.
- Post S*W*A*T: Additional management training, consulting, technical assistance, and end-user training is performed on-site some time after the S*W*A*T Workshop. Support is provided to review progress, answer questions, and fine tune the system.
- S*W*A*T pricing ranges from \$10,000 to \$20,000. Over 300 companies have used the program.

Global Software provides customer service through a program called Annual Improvement, Maintenance, and Support (AIMS).

- An AIMS agreement provides customers with:
 - Product enhancements stemming from user requirements
 - Monthly distribution of program fixes
 - Toll-free telephone hotline service from 9:00 a.m. to 5:00 p.m.
 - Newsletters that provide the status of program fixes and product development efforts
- An AIMS contract is priced at approximately 10-15% of the existing product license fee per year.

Industry Markets

The majority of Global Software's revenue is derived from clients across industries. The company derives approximately 15% of its revenue from vertical products for the health-care industry.

Clients include small to large companies in the manufacturing, distribution, utilities, transportation, and health-care industries.

Global Software has strategic partnering relationships with several vendors, including Applied Data Research, Baxter Travenol, Datacare, HBO & Company, and several Big 8 accounting firms.

Geographic Markets

Approximately 70% of Global Software's fiscal 1988 revenue was derived from the U.S. and 30% from Canada, the U.K., and other foreign countries.

U.S. offices are located in Raleigh, Chicago, Dallas, Hauppauge (NY), and Woodland Hills (CA).

The company also has an office in London and has international affiliates and agents in Mexico, Brazil, Argentina, Western Canada, Puerto Rico, France/Belgium, Venezuela, Africa, and Hong Kong.

**Computer
Hardware**

Global Software maintains the following equipment at its headquarters:

- 1 IBM 4331
- 1 IBM System 34
- 1 IBM System 36
- 1 IBM System 38
- 2 Magnuson M-80s

1870-1871

COMPANY PROFILE

**MANAGEMENT SCIENCE
AMERICA, INC.**

3445 Peachtree Road, N.E.
Atlanta, GA 30326-1276
(404) 239-2000

John P. Imlay, Jr., Chairman and CEO
Public Corporation, OTC
Total Employees: 2,500
Total Revenue, Fiscal Year End
12/31/87: \$258,543,000

The Company

Management Science America, Inc. (MSA), founded in 1963, develops, markets, and supports a range of application software packages for use on medium- to large-scale mainframes. These packages include logistics, financial, and human resources products for cross-industry applications, as well as functionally specific applications for manufacturers, financial institutions, government organizations, health-care providers, educational institutions, distributors, and insurance firms.

In addition, the company offers a fourth-generation technology called Information Expert[®] that provides end users a facility to access and combine information from multiple applications and data bases for reporting, performing on-line queries, and designing screens.

MANAGEMENT SCIENCE AMERICA, INC.
FIVE-YEAR FINANCIAL SUMMARY
(\$ thousands, except per share data)

ITEM	FISCAL YEAR				
	1987	1986	1985	1984	1983
Revenue	\$258,543	\$193,449	\$151,661	\$141,816	\$117,364
• Percent increase from previous year	34%	28%	7%	21%	34%
Income before taxes and extraordinary item (a)	948	36,142	10,544	25,393	19,490
• Percent increase (decrease) from previous year	(97%)	243%	(58%)	30%	33%
(Loss) from discontinued operations	--	--	--	(7,503)	(203)
(Loss) on disposal of discontinued operations	--	--	--	(5,952)	(203)
Cumulative effect of accounting changes	(70,233)	--	--	--	--
Net income	(70,959)	18,741	6,860	243	10,769
• Percent increase (decrease) from previous year	--	173%	(b)	(98%)	20%
Earnings per share from continuing operations	(\$0.01)	\$1.03	\$0.39	\$0.77	\$0.64
Net earnings per share	(\$4.11)	\$1.03	\$0.39	\$0.01	\$0.63
• Percent increase (decrease) from previous year	--	164%	(b)	(98%)	2%

- (a) Amounts for 1984 and 1983 have been restated to reflect continuing operations. In the fourth quarter of 1984, MSA adopted a plan to dispose of its retail microcomputer software division. By the end of the first six months of 1985, the company had sold these operations for \$2.5 million in cash and notes.

During 1987, MSA changed its accounting policies for recognizing software license fees and support agreement fees. Software license fees are now recognized upon delivery of software to customers. Support agreement fees are now recognized pro rata over the life of the agreement. The cumulative effect of these revenue recognition changes resulted in:

- Reduction in cumulative revenues from prior years of \$101.4 million.
- Income tax benefit from prior years of \$31.5 million.
- Net change to income and retained earnings of \$69.9 million.
- Increase in the reported backlog of \$31.3 million as of December 31, 1986 by \$109.5 million. The backlog as of December 31, 1987 was \$141.9 million.



Figure 1. ^1H NMR spectrum of poly(2-vinylpyridine) (P2VP) in CDCl_3 .



Figure 2. ^1H NMR spectrum of poly(2-vinylpyridine) (P2VP) in CDCl_3 .

Additional small changes (a one time charge of \$286,000) derived from implementation of FAS 96.

(b) Percent change exceeds 1,000%.

**MANAGEMENT SCIENCE AMERICA, INC.
FIVE-YEAR FINANCIAL SUMMARY (RESTATED*)
(\$ thousands except per share data)**

ITEM	FISCAL YEAR ENDING DECEMBER 31				
	1987	1986	1985	1984	1983
Revenue	\$258,543	\$180,790	\$143,212	\$125,931	\$102,452
• Percent increase from previous year	43%	26%	14%	24%	--
Net Income (Loss)	(726)	13,193	3,665	(7,286)	3,845
Earnings (Loss) per Share	(0.04)	0.73	0.21	(0.43)	0.23

MSA's basic business has continued to be profitable. Significant losses have occurred in acquired companies. Shown below is a restatement of MSA's 1985 and 1986 financial performance under new revenue recognition policies had the acquisitions identified taken place as of January 1, 1985. Data for 1987 is also included where identified.

**MANAGEMENT SCIENCE AMERICA, INC.
RESTATEMENT OF REVENUE
(\$ thousands)**

	FISCAL YEAR		
	1987	1986	1985
Pro forma Revenues			
- MSA	--	180.8	143.2
- RTS	--	1.8	4.0
- IA	--	12.9	15.5
- Comserv	--	<u>22.0</u>	<u>28.5</u>
Combined	258.5	217.5	191.2
Pro forma Net Income			
- MSA	*	13.2	3.71
- RTS	(\$12.6)	(2.1)	(3.7)
- IA	*	(0.4)	(1.6)
- Comserv	*	<u>(6.9)</u>	<u>(2.9)</u>
Combined	(0.7)	3.8	(4.6)

* Unknown

In 1988 through the second quarter MSA has had net income of \$8.2 million. In July MSA rejected a \$191 million offer to purchase the firm from Computer Associates, Inc.

During 1987 and 1986, MSA made three acquisitions, all accounted for as purchases.

- In December 1986, MSA acquired 63% of Comserv Corporation for \$8.3 million in cash to Comserv and \$1.5 million for Control Data Corporation's interest in Comserv.
 - In February 1987, MSA acquired the remaining 37% of Comserv's outstanding stock for \$7.1 million.
 - Comserv, with 1985 revenue of approximately \$29.5 million, provides manufacturing resource planning (MRP II) software products, including the AMAPS product line.
 - The operations of Comserv and MSA Manufacturing have been merged into MSA Advanced Manufacturing Inc., a wholly owned subsidiary of MSA.
- In August 1986, MSA acquired Information Associates, Inc. (IA) for \$15 million in cash and notes.
 - IA provides application software products to the higher education market and has more than 400 customers worldwide.
 - IA, with revenue of approximately \$16 million and pretax income over \$1 million in 1985, had 250 employees at the time of the acquisition.
 - IA now operates as a wholly owned subsidiary of MSA.
- In June 1986 MSA acquired RTS Limited for approximately \$1 million in cash.
 - Based in Dublin, Ireland, RTS develops, markets, and supports manufacturing and financial software products for IBM System/36 and System/38 computers. The products are available in English and six other languages.
 - RTS had 1985 revenue of over \$4.0 million. The company had licensed more than 1,500 products to approximately 300 customers in 20 countries at the time of the acquisition.

- RTS has continued to operate at a substantial loss. It has been restructured to reduce these losses.

MSA currently employs about 2,500 people worldwide. This is down from a high of 2,800.

Key Products and Services

A three-year summary of source of revenue follows:

MANAGEMENT SCIENCE AMERICA, INC. THREE-YEAR SOURCE OF REVENUE SUMMARY

ITEM	FISCAL YEAR					
	1987		1986		1985	
	REVENUE (\$ Millions)	PERCENT OF TOTAL	REVENUE (\$ Millions)	PERCENT OF TOTAL	REVENUE (\$ Millions)	PERCENT OF TOTAL
Software Package License Fees	\$126.0	48%	\$120.6	62%	\$87.8	58%
Support Services	130.6	51%	71.7	37%	62.8	41%
Other	2.0	1%	1.1	1%	1.1	1%
TOTAL	\$258.6	100%	\$193.4	100%	\$151.7	100%

MSA has licensed over 20,000 of its products to more than 7,500 customers worldwide.

- Approximately 375 of the Fortune 500 companies use one or more of the company's packages.
- MSA offers cross-industry application products for IBM 370, 43XX, 30XX, 9370, System 36 and 38; Unisys 1100, 2200, V series, A series, 29XX, 39XX, 49XX, 59XX, and 7XXX; Honeywell Bull DPS 8, DPS 88, DPS 90, and DPS 8000; and NCR 85XX, 86XX, 88XX, and 9800 series computers.
- Manufacturing applications are also provided for the HP 3000 and IBM 36/38 minicomputers, as well as IBM mainframes.

- Higher education administrative software is available for DEC VAX and MicroVAX systems, as well as IBM mainframes.
- MSA supports the major IBM operating environments and popular data base management systems such as IBM's DB2, IMS, and DL/I; Applied Data Research's DATACOM/DB; Cullinet's IDMS/R; and Software AG's ADABAS.

MSA provides the Expert Series, a line of on-line, real-time software products for financial, human resources, and manufacturing applications. Cross-industry products available include the following:

- Accounts Payable provides control of the disbursement process --from document matching, invoice entry, and approval to payment processing and reconciliation.
- Accounts Receivable provides credit and collection management, interactive cash application facilities, and customer correspondence.
- ALLTAX^R provides tax coverage by calculating payroll and withholding taxes for businesses in the U.S. and Canada.
- Budgetary Control manages the budgeting, accounting, and procurement process in government, education, and other public sector environments.
- Distribution Resource Planning monitors inventories, customer service levels, and other resources to develop an integrated time phased inventory plan that drives the purchasing scheduling process. The system supports economic ordering, safety stock management, inventory allocation, transportation planning, and performance reporting.
- Expert EDI is MSA's electronic data interchange product.
- Financial Controller provides validation, data interchange, and total information access to integrate all financial applications.
- Fixed Assets Accounting provides property control, depreciation forecasting, and financial and tax accounting, including compliance with tax and regulatory changes. It supports multinational operations.

- Forecasting and Modeling provides complete decision support for "what if?" analysis and planning through integration with the MSA General Ledger, Accounts Payable, Accounts Receivable, and Payroll/Personnel Systems, as well as with in-house systems.
- Foreign Exchange provides multicurrency processing through integration with MSA's General Ledger, Accounts Payable, and Accounts Receivable Systems, as well as in-house systems.
- General Ledger provides accounting and auditing functions, including real-time budgeting and planning facilities, cost accounting functions, and management reporting. It has more than 2,300 customers worldwide. Its interpreted foreign exchange facilities simplify multicurrency processing.
- Health Care Decision Support provides a data base of clinical and financial information for case mix management, offers detail or summary-level cost determination of products or services for comprehensive product line costing, and provides productivity analysis for variances between actual and earned labor, material, and overhead costs. In addition, Patient Accounting from TDS Healthcare Systems Corporation is marketed by MSA to provide integrated financial and patient accounting.
- International Personnel and Payroll provides a range of business applications required by the personnel, benefits, employee relations, payroll, and accounting departments.
- Inventory provides control of obtaining, storing, and issuing inventory. The system can help reduce the cost of inventory, ensure satisfactory stock levels, and streamline replenishment.
- Order Processing supports customer service by controlling order entry, shipment support and billing, and other order management activities through easy-to-use, interactive, real-time facilities.
- Payroll/Personnel meets internal, regulatory, accounting, and auditing requirements in producing payroll checks, labor distribution reports, salary reviews, manpower planning, and other human resource reports. The system fully supports recruiting, hiring, payment policies, taxing considerations, benefits administration, compensation administration, and employee relations.

- Expert Insight gives customers 24-hour access to MSA's Client Support Center in Atlanta through a PC-to-PC link and allows the customer to browse a data base of timely product information and system corrections.
- Computer-Based Diagnostics provides a direct, interactive link between the customer's mainframe computer and the MSA Client Support Center. With this service, customers give MSA selective access to their relevant system files or programs.

Industry Markets

MSA's revenue is derived approximately as follows:

Manufacturing	41%
Banking and Finance	13%
Distribution	11%
Services	6%
Government/Education	7%
Insurance	6%
Commercial/Transportation	3%
Utilities	5%
Medical	4%
Other	4%
	100%

More than three-fourths of the Fortune 500 companies use one or more of MSA's packages.

- Project Tracking monitors, controls, and reports on all kinds of major projects from budget to completion.
- Purchasing provides on-line facilities that streamline the entire purchasing cycle, including processing requisitions, quotations, purchase orders, receipts, and inspections.
- Sales Forecasting supports the requirements of manufacturers, wholesalers, and retailers by providing a decision support tool for structured management planning and forecast management. The system supports multi-level forecasts, group level adjustments, new product forecasts, and performance reporting.

Information Expert[®] is MSA's information management environment that integrates MSA applications with in-house developed and other third-party systems. Information Expert components include the following:

- Expert Reporting[™] guides users through retrieval and reporting of information from multiple data bases and applications.
- ExpertLink[®] permits two-way communications between microcomputers and mainframes.
- Expert Query[™] provides natural language interfaces to allow users to interact with management information systems.
- Expert Screen Painting[™] provides end users with realtime screen building facilities.
- Expert Language, a fourth-generation language.
- Expert Data Dictionary allows users to integrate all their software under one centralized environment.

In addition to cross-industry software for financial management and human resources applications, MSA also offers versions of its products for specific industry markets.

Customer support services available include the following:

- Multiple levels of installation support.
- MSA currently offers over 150 different customer education courses from major training centers worldwide.
- MSA has two computer-based services:

Geographic Markets

Approximately 77% of MSA's 1987 revenue was derived from the U.S. A three-year summary of source of revenue follows:

MANAGEMENT SCIENCE AMERICA, INC. THREE-YEAR SOURCE OF REVENUE SUMMARY (\$ millions)

ITEM	FISCAL YEAR					
	1987		1986		1985	
	REVENUE* (\$M)	PERCENT OF TOTAL	REVENUE* (\$M)	PERCENT OF TOTAL	REVENUE* (\$M)	PERCENT OF TOTAL
U.S.	\$198.4	77%	\$138.5	72%	\$116.0	76%
Europe	36.3	14%	34.1	18%	20.7	14%
Asia/Pacific	8.7	3%	10.8	6%	7.1	5%
Canada	10.1	4%	7.1	3%	6.7	4%
Other	5.0	2%	2.9	1%	1.2	1%
TOTAL	\$258.5	100%	\$193.4	100%	\$151.7	100%

* 1987 revenues reported conform to the new accounting policies. The corresponding 1986 and 1985 amounts have not been restated and are not comparable to those reported in 1987. On a comparable basis total revenues from customers outside the U.S. in 1987 would have been higher by \$8.4 million.

U.S. offices are located in Atlanta, Boston, Boulder, Chicago, Columbus, Dallas/Ft. Worth, Denver, Detroit, Houston, Kansas City, Los Angeles, Minneapolis/St. Paul, Nashville, New Haven, New York, Philadelphia, Phoenix, Rochester, San Diego, San Francisco, Seattle, Syracuse, Washington, D.C., and Winston-Salem.

Foreign offices are located in Canada, the U.K., Belgium, France, West Germany, Holland, Italy, Spain, Sweden, Norway, Ireland, China, New Zealand, Australia, and Singapore. MSA also has representatives in Brazil, Japan, Mexico, Peru, and Puerto Rico.

**Computer
Hardware and
Software**

MSA Maintains the following equipment at its Atlanta headquarters:

- 1 IBM 3090-400, operating under MVS/XA
- 1 IBM 3081-K32, operating under MVS/XA
- 1 IBM 4381-P14, operating under MV/DOS VSE
- 1 IBM 4381-Q24, operating under MVS/XA

COMPANY PROFILE

MCBA, INC.
425 West Broadway
Glendale, CA 91204
(818) 242-9600

Stina Hans, President
Private Corporation

The Company

MCBA, Inc., established in 1974, originally developed and marketed accounting software for minicomputers. Currently, MCBA provides accounting, distribution, and manufacturing application software for microcomputers and minicomputers.

In fiscal year ending March 1988, revenues were up 17% over the previous year.

Key Products and Services

Over 90% of revenues are from application software sales. The remainder are from education and training services associated with MCBA software products.

MCBA offers 20 software packages. Accounting software accounts for approximately 45% of revenue.

Products offered are:

- Accounts Payable, Accounts Receivable, Bill of Material Processor, Capacity Requirements Planning, Customer Order Processing, Fixed Assets and Depreciation, General Ledger, Inventory Management, Job Costing, Labor Performance, Mailing List, Master Scheduling, Material Requirements Planning, Payroll, Purchase Order and Receiving, Report Writer, Sales History, Shop Floor Control, Standard Product Costing, Standards Products Routing (Not all packages available for all product lines.)

Platforms supported are:

- COBOL packages for minicomputers
 - Digital VAX under VMS
 - Wang VS under the VS operating system

- HP 3000 under MPE with IMAGE
- TI Business Systems under DX10 and DNOS
- DIBOL packages for minicomputers:
 - Digital VAX, PDP-11 under RT-11, TSX-Plus, RSTS/E, and VMS
- SOFTBOL packages for small business systems:
 - ALTOS under XENIX
- RM/COBOL packages for small business systems:
 - IBM PC-XT, PC-AT and 100% compatibles under PC-DOS/MS-DOS
 - IBM Token Ring and Novell Local Area Networks under NetWare
 - ALTOS under XENIX
 - IBM PC/AT and 100% compatibles under XENIX
 - NCR TOWER under UNIX
 - UNISYS 5000 under UNIX
 - AT&T 3B2 and larger models under UNIX

MCBA provides optional education and training services for its software packages at its headquarters location.

MCBA has a branch office in Iselin, NJ.

Company Strategy Continue to market microcomputer accounting software through its 1,500-member distribution network

Develop accounting software for more hardware platforms

Do direct sales of its full-line accounting and manufacturing software for DEC VAX minicomputer

Increase education and training for its products in order to remain competitive

**Computer
Hardware**

MCBA has more than 30 computers installed including DEC PDP and VAX, Wang VS, HP 3000, TI Business System, IBM PC/XT and PC/AT, Perkin-Elmer, NCR, Zilog, Altos, Intel, and Motorola computers.

COMPANY PROFILE

McCORMACK & DODGE CORPORATION

1225 Worcester Road
Natick, MA 01760
(617) 655-8200

Frank H. Dodge, President
Division of The Dun & Bradstreet Corporation
Total Employees: 1,700
Total Revenue, Fiscal Year End
11/30/87: \$151,000,000*

*INPUT estimate

The Company

McCormack & Dodge Corporation (M&D), formed in 1969 and acquired by Dun & Bradstreet in 1983, develops, markets, and supports software products for financial, human resources, and manufacturing resource planning applications. The company also offers software tools for application development, micro-to-mainframe links, and report writing.

M&D's fiscal 1987 revenue reached an estimated \$151 million, a 24% increase over estimated fiscal 1986 revenue of \$122 million. A three-year revenue summary follows:

**McCORMACK & DODGE CORPORATION
THREE-YEAR REVENUE SUMMARY***
(\$ millions)

ITEM	FISCAL YEAR		
	11/87	11/86	11/85
Revenue	\$151	\$122	\$100
• Percent increase from previous year	24%	22%	N/A

* INPUT estimates

M&D management attributes revenue growth to strong domestic sales and significant gains in international markets, including Australia, France, and the U.K.

- M&D's annual sales have increased 40 times in ten years.
- Since its acquisition by Dun and Bradstreet in 1983, M&D's revenue has grown on average by more than 30% per year.

The company has operated profitably since inception and achieved

record net income in fiscal 1987.

In March 1988, M&D acquired Neller Software's Austpay Australian payroll/personnel package. Terms of the purchase were not disclosed.

- Introduced by Neller Software in 1983, Austpay is installed throughout Australia and New Zealand at more than 50 customer sites, including L.M. Ericsson, Mitsubishi Motors, and Air New Guinea. The system runs on IBM, DEC, ICL, and Fujitsu computers.
- The Austpay business will become part of McCormack & Dodge Australia Pty. Ltd., M&D's Australian operation headquartered in Sydney. All nine former Neller Software employees who worked on Austpay development and support will join M&D Australia and will work to integrate Austpay with M&D's Millennium execution environment.
- Initial target markets for Austpay are Australia and New Zealand. M&D will consider selling Austpay in other international markets in the future.

In early 1988 M&D announced an agreement with GE Information Services whereby M&D will incorporate electronic data interchange (EDI) capabilities into two of its software products.

- Upcoming releases of PO:Millennium (Purchase Order) and the PIOS Purchasing Management module will allow the users to create EDI-formatted purchase orders directly from within those applications.
- Users will be able to send electronic purchase orders straight into EDI*T, GE Information Services' EDI translation software. Formatted electronic documents can then be transmitted via GE Information Services' EDI*Express network into the EDI mailboxes of their suppliers.

M&D is currently organized into the following business units.

- The Financial Systems Business Unit markets and supports the company's Millennium mainframe financial/accounting software products and the Satellite Series product line.
- The Human Resources Business Unit markets and supports the Millennium human resource management product line.

- The Application Tools Business Unit markets and supports Millennium application tools and its micro-to-mainframe link, Interactive PC Link.
- The Distributed Systems Business Unit markets and supports the PLUS line of financial/accounting products for DEC VAX and IBM System 36 and 38 computers and PC MinLink, a micro-to-minicomputer link.
- The Manufacturing Systems Business Unit markets and supports the PIOS and C/PIOS manufacturing control systems.
- M&D also has foreign subsidiaries in Australia, Belgium, Brazil, Canada, France, Japan, The Netherlands, New Zealand, Singapore, Spain, and the U.K.

As of November 30, 1987 M&D had approximately 1,700 employees. The company currently has approximately 1,800 employees.

M&D's primary competitor is Management Science America. Other competitors include Computer Associates International, Cullinet, and Data Design Associates.

Key Products and Services

One hundred percent of M&D's revenue is derived from software products and associated support services. The company has more than 7,500 systems installed worldwide.

- M&D's line of financial information systems represents the largest contribution to revenue.
- The company also markets human resource management and manufacturing application software products as well as application development tools.

M&D's Millennium Series of products, introduced in 1983, are designed for IBM 370, 30xx, and 43xx mainframes running under OS and DOS. The products are available for VSAM and IMS environments. The products are also available for Fujitsu and ICL computers in certain international markets (primarily in Japan, Australia, and the U.K.). The company is currently also developing DEC VAX versions of its Millennium products.

**McCORMACK & DODGE CORPORATION
SOFTWARE PRODUCTS**

Product	Application	Number Installed	Price
Millennium Series			
GL:M	General ledger	2,000	\$140,000-\$210,000
AR:M	Accounts receivable	200	\$130,000-\$170,000
AP:M	Accounts payable	1,250	\$90,000-\$125,000
PO:M	Purchase order	400	\$90,000-\$125,000
FA:M	Fixed assets	1,150	\$56,000-\$97,000
CP:M	Capital project	300	\$47,000-\$51,000
CM:M	Currency management	New	\$65,000
HR:M	Human resource management system		
	Payroll	400	\$118,000-\$160,000
	Personnel	400	\$99,000-\$134,000
	Applicant flow	-	\$15,000
	Position control	-	\$15,000
	Safety and health	-	\$15,000
	Benefits administration	-	\$50,000-\$55,000
M:SDT	Application development tool	400	\$75,000-\$135,000
M:MRW	Mainframe report writer	225	\$35,000
M:FYI	Memorandum system	150	\$10,000
M:ViewPrint	Report writer	New	\$32,500
Interactive	Micro-to-mainframe link	850	\$35,000/mainframe
PC Link		(mainframe) 8,500 (micro)	\$1,100/micro
Batch Transaction Processor	Batch processor	60	\$30,000-\$40,000
Satellite Series			
AP:Satellite	Accounts Payable	50	\$17,500
GL:Satellite	General Ledger	50	\$12,500

(cont.)

**MCCORMACK & DODGE CORPORATION
SOFTWARE PRODUCTS**

Product	Application	Number Installed	Price
PLUS Products			
A/P PLUS	Accounts payable	900	Under review
F/A PLUS	Fixed assets	850	Under review
G/L PLUS	General ledger	1,700	Under review
PC MinLink	Micro-to-minicomputer link	100	\$4,500
Manufacturing Systems			
PIOS	Production and inventory optimization system	30	\$200,000-\$600,000
	Master production scheduling		
	Customer order entry		
	Inventory management		
	Bill of material		
	Material requirements planning		
	Purchasing management		
	Shop floor control		
	Cost management		
	Materials management		
C/PIOS	Contract/commercial Production and inventory Optimization system	50	

- M&D offers Millennium products for financial/accounting and human resource management applications. Tools for application development, report writing, micro-to-mainframe linking, and office communications are also available.
- In April 1988, M&D announced GL:Millennium 3.0, a newly designed General Ledger Information System that allows users to define key fields and record lengths so that the general ledger data base reflects their own individual reporting and storage needs.
- In April 1988, the company introduced CM:Millennium, a Currency Management System that allows companies to manage their businesses in multiple currencies.
- HR:M, the Millennium Series of Human Resource Management Systems, offers systems for Payroll and Personnel.
 - Optional modules that run with HR:M include Applicant Flow, Position Control, Safety and Health, and Benefits Administration.
 - HR:M systems run on OS, DOS, as well as VS/MVS/VSE operating systems.
 - In March 1988, M&D introduced HR TAX, an automated tax update service that provides customers of HR:M with immediate access to tax updates via a PC-to-PC telecommunications link. HR TAX runs on IBM and compatible microcomputers and is available to HR:M customers on a subscription basis for \$1,200 per year.
- M:SDT, M&D's application development tool, works with most major data base management systems, including IMS, VSAM, and DB2. M:SDT is M&D's first product that supports DB2. The company plans to move its full line of applications to DB2.
- In August 1987, M&D announced M:ViewPrint, a cross-application detail report writer that allows users to develop and run reports on-line or in batch.

The Satellite Series of products, announced in August 1987, process data on microcomputers for mainframe consolidation.

- AP:Satellite and GL:Satellite allow users to process accounts payable and general ledger mainframe transactions on IBM and compatible microcomputers, offloading mainframe work functions.

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- The products work in conjunction with Interactive PC Link, M&D's micro-to-mainframe link.
- According to M&D management, the Satellite Series is an important step in the company's distributed processing strategy to offer compatible functionality on mainframes, minicomputers, and microcomputers.

The PLUS line of financial/accounting software products are available for DEC VAX and IBM System 36 and 38 computers. M&D plans to migrate its DEC-based products to a Millennium environment.

- F/A PLUS is available only for DEC VAX systems.
- PLUS products are also available in France on Honeywell Bull computers.
- During 1987 M&D introduced PC MinLink, a micro-to-minicomputer link for the DEC VAX and IBM System 38 that handles general ledger data.

M&D's manufacturing systems include PIOS (Production and Inventory Optimization System) and C/PIOS. Both products interface with M&D's GL:M and AP:M products.

- PIOS is an on-line manufacturing control system that consists of nine modules that can be used alone or in combination. The newest module, Materials Management, was introduced in 1987. PIOS runs on IBM mainframes under OS, DOS, MVS and DEC VAX-11/780 and larger systems under VMS.
- C/PIOS is a version of PIOS that is targeted to contract or commercial manufacturing environments. C/PIOS runs on IBM 370, 30xx, and 43xx mainframes under OS, DOS, MVS/XA.

M&D offers its customers support through its field support offices, a toll-free help line, remote diagnostics, and individual product group support. User group meetings are held during the year to offer users further support and to obtain user input on system enhancements.

- Customers receive all system enhancements and full technical support at no charge for a full year after the purchase of an M&D system. Thereafter, M&D provides software maintenance services for its products for an annual fee of approximately 13 1/2% of the current product purchase price.

- The company also offers product training at its Customer Education Centers located across the U.S. and in M&D offices worldwide.
- Courses last from three to five days and are staffed by M&D instructors who train customers in both application and data processing aspects of the system.
- M&D also offers computer-based training programs to help users learn Millennium topics at their own pace.

Industry Markets

M&D's clients are generally large corporations with revenue in excess of \$100 million. Over half of the Fortune 500 companies use one or more of the company's products.

The manufacturing industry is the company's largest revenue contributor. The company also has customers in the banking, insurance, utilities, health care, education, retail, oil and gas, and real estate markets, as well as state and local governments.

M&D has joint marketing agreements with Avatar Technologies, DEC, IBM, GE Information Services, and Aion Corp. In addition, the company has joint initiatives with Arthur Andersen, Arthur Young, Coopers & Lybrand, and Price Waterhouse.

Geographic Markets

Approximately 70% of M&D's fiscal 1987 revenue was derived from the U.S. and 30% from international sources.

U.S. regional offices are located in Natick (MA), Atlanta (GA), Schaumburg (IL), Cleveland (OH), Irving (TX), Lakewood (CO), Southfield (MI), Huntsville (AL), Los Angeles and San Mateo (CA), Brookfield (WI), Minneapolis (MN), Teaneck (NJ), Bellevue (WA), and McLean (VA).

M&D Education Centers are located in Atlanta, Huntsville, Schaumburg, and Los Angeles.

International subsidiaries are located in Australia, Belgium, Brazil, Canada, France, Japan, The Netherlands, New Zealand, Singapore, Spain, and the U.K.

M&D distributors are located in Argentina, Denmark, Finland, Hong Kong, Indonesia, Italy, Malaysia, Mexico, Norway, Peru, the Philippines, Saudi Arabia, Singapore, Sweden, Taiwan, Thailand, Turkey, and Venezuela.



**Computer
Hardware and
Software**

M&D has a range of computers installed for product development and customer support, including IBM mainframes, minicomputers, and microcomputers, DEC VAX systems, and an NAS 90/60.

COMPANY PROFILE

ROSS SYSTEMS INC.

1860 Embarcadero Road
Palo Alto, CA 94303
(415) 856-1100

Richard Giordanella, President
Subsidiary of ROSSDATA Corporation
Founded: 1972
Total Revenue, Fiscal Year End
6/30/88: \$25 million

The Company

Ross Systems Inc. provides accounting and financial software and other application software, systems software, processing services, and professional services for DEC VAX equipment.

ROSS SYSTEMS INC.
FINANCIAL DATA
(\$ millions)

	FISCAL YEAR ENDING 6/30		
	1988	1987	1986
Revenues	25.0	16.1	13.7
(percent increase)	55%	18%	21%

Software sales grew by 66% in FY88, and revenues from client services increased 123%.

Growth came from the MAPSTM family of financial management and accounting software, as well as the introduction of an Executive Information System (EIS). The EIS product incorporates the 20/20TM spreadsheet from Access Technology and a new purchase order product--MAPS/PO.

On November 24, 1986, Ross Systems and Virtual Microsystems of Berkeley (CA) merged to form ROSSDATA Corporation. Both Ross Systems and Virtual Microsystems continued as separate operating companies, while ROSSDATA provided organizational support.

In November 1988 ROSSDATA announced the acquisition of Ross Systems and the separation of the Microsystems company.

Ross Systems sources of revenue is as follows:

Application Software	70%
Systems Software	10%
Processing Services	5%
Professional Services	<u>15%</u>
	100%

Key Products and Services

Application Software (Utilizes DEC VAX computers)

- MAPS/GL, general ledger system
- MAPS/AP, accounts payable system
- MAPS/AR, accounts receivable system
- MAPS/FA, fixed assets system
- MAPS/MODEL, financial model and budgeting system
- MAPS/GRAPH, business presentation graphics system
- MAPS/ISO, incentive stock option and tracking system
- MAPS/PRO, financial modeling and graphics system for DEC Professional 350

Systems Software (Utilizes DEC VAX computers)

- MAPS/MICROLINK, mini-to-micro link
- MAPS/DB, data base management system

Processing Services (Utilizes DEC VAX minicomputers)

- Ross Systems Inc. makes its software available through processing services. Customers access Ross Systems' data center through either Tymnet or Rossnet, Ross Systems' proprietary network.

Professional Services

- Ross Systems Inc. modifies its off-the-shelf software and develops custom software for DEC VAX computers in order to meet specific customer requirements.

Target Industries Targets mid-sized and Fortune 1000 companies

Geographic Markets 100% direct sales through its offices in San Mateo (CA), Nashua (NH), New York City, and the United Kingdom.

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COMPANY PROFILE

**SYSTEM SOFTWARE
ASSOCIATES, INC.**

200 West Madison
Suite 2850
Chicago, IL 60606
(312) 641-2900

Roger E. Covey, Chairman and President
Public Corporation, OTC
Total Revenue, Fiscal Year End
10/31/87: \$30,893,000

The Company

System Software Associates, Inc. (SSA), founded in 1981, develops, markets, and supports an integrated line of business application software for IBM AS/400, System/38, and System/36 computers that are designed for manufacturing, distribution, and financial applications. The products are marketed through a network of 36 independent companies (affiliates) with offices in 22 countries. Each affiliate has responsibility for product sales, installation, and support.

In February 1987, SSA made an initial public offering of approximately 1.4 million shares of common stock, of which 700,000 shares were offered by SSA and the remaining shares by selling stockholders. Net proceeds to the company are estimated to be \$8.1 million.

Financial Performance

During 1988 SSA has continued to expand. Revenues for the first 9 months of the fiscal year (ending July 31, 1988) were up 103% over the same period the previous year and reached over \$40 million.

**SYSTEM SOFTWARE ASSOCIATES, INC.
FIVE-YEAR FINANCIAL SUMMARY
(\$ thousands, except per share data)**

ITEM	FISCAL YEAR				
	10/87	10/86	10/85	10/84	10/83
Revenue	\$30,893	\$16,206	\$9,508	\$3,972	\$606
• Percent increase from previous year	91%	70%	139%	555%	291%
Income before taxes	\$5,962	\$3,260	\$1,953	\$1,013	\$33
• Percent increase from previous year	83%	67%	93%	*	32%
Net income	\$3,302	\$1,760	\$1,055	\$553	\$33
• Percent increase from previous year	88%	67%	91%	*	32%
Earnings per share	\$0.68	\$0.43	\$0.28	\$0.18	\$0.01
• Percent increase from previous year	58%	54%	56%	*	NM

* Percent change exceeds 1,000%

SSA management attributes revenue increases to increased sales by existing affiliates, the addition of new affiliates in geographic territories where SSA previously had no affiliates, increased sales to large accounts, price increases on System/38 products, and the introduction of new products.

In December 1986, SSA purchased Syncrocom, Inc., its Chicago area affiliate, for approximately \$540,000 in cash and stock.

- Prior to the acquisition, Syncrocom accounted for approximately \$586,000, \$923,000, and \$833,000 of SSA's software license fee revenue for fiscal 1984, 1985, and 1986, respectively.
- Syncrocom will operate as an SSA-owned affiliate.

Other acquisitions include:

- June 1987, acquired Outlook, Inc., a provider of decision support software for the IBM 3X product line.
- June 1987, acquired SSA's New England affiliate, ASE Services, Inc.

- October 1987, acquired SSA's Australian affiliate, Admin. ADP Pty Ltd.

Key Products and Services

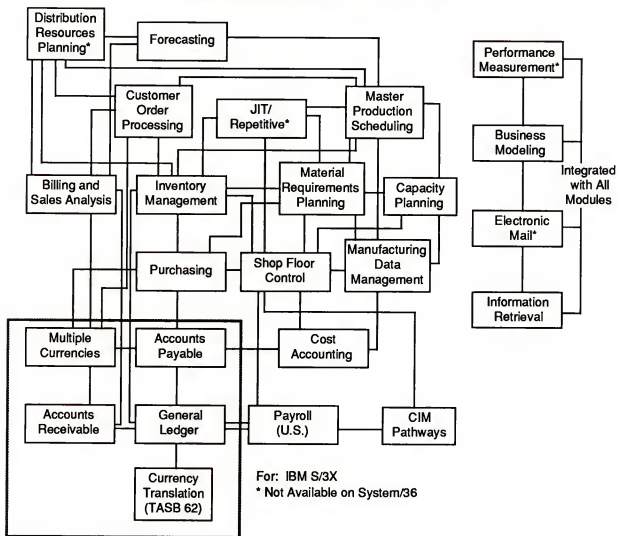
SSA's software product line--known as the Business Planning and Control System (BPCS)--consists of over 20 integrated products designed for manufacturing, distribution, and financial application for IBM AS/400, System/38, and System/36 computers.

In June 1988, SSA announced the availability of its complete line of products (BPCS/400) in native mode on the AS/400 concurrently with the IBM announcement of this new line of midrange computers. SSA expects that the AS/400 will be the primary platform for its products in the foreseeable future.

SSA's current BPCS products include the following:

- Manufacturing products, accounting for approximately 35% of revenues
 - Material Requirements Planning (MRP) identifies purchasing and production scheduling actions that are needed in response to day-to-day events.
 - JIT/Repetitive Manufacturing provides support for just-in-time manufacturing techniques and support for repetitive process manufacturers (System/38 only).
 - Manufacturing Data Management (System/38)/Bill of Materials (System/36) allows the retrieval and use of information regarding manufacturing processes and components for planning and costing needs.
 - Shop Floor Control provides current status of jobs, work-in-process, and production activity to permit detailed planning and scheduling.
 - Master Production Schedule identifies production planning actions that need to be taken in response to day-to-day events and ties overall business planning to detail operations.
 - Capacity Planning identifies potential capacity bottlenecks and backlog problems so that adjustments can be made.
 - Cost Accounting provides detail cost analysis information for both orders and products.

SSA SOFTWARE PRODUCTS THE FULLY INTEGRATED BPCS SOLUTION



BPCS Products

Financial

General Ledger
Currency Translation
Accounts Payable
Accounts Receivable
Multicurrency
Payroll (U.S.)

Manufacturing

Manufacturing Data Management
Master Production Scheduling
Material Requirements Planning
JIT/Repetitive
Capacity Planning
Shop Floor Control
Cost Accounting
Performance Measurement
CIM Pathways

Distribution

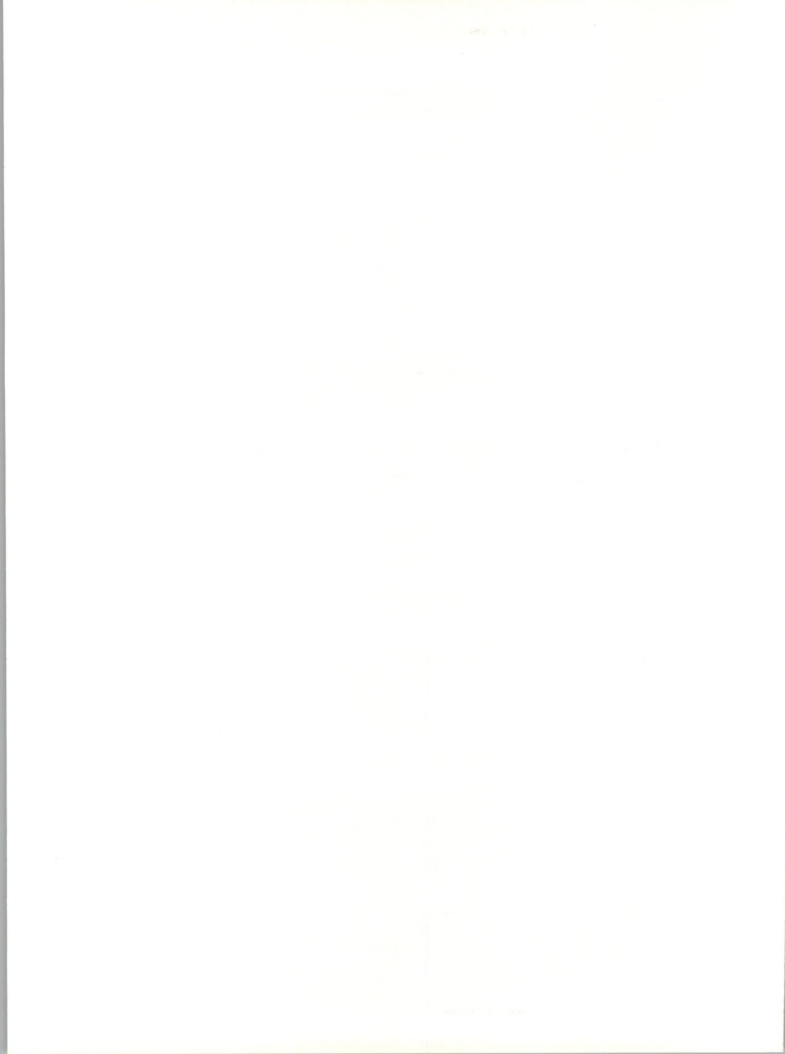
Distribution Resources Planning
Order Processing
Billing and Sales Analysis
Demand Forecasting
Inventory Management
Purchasing

Decision Support

Information Retrieval
Business Modeling
Electronic Mail

Education

Executive Overview
Concepts & Applications



- Factory Data Collection allows information to be collected from the factory floor through a variety of mechanisms such as badge readers, optical character readers, cards, process control devices, or manual entry.
- Distribution products, accounting for approximately 35% of revenues
 - Inventory Management allows processing of information on finished goods, work-in-process, and raw material inventory and provides summary and detail analysis on demand for both accounting and production control purposes.
 - Distribution Resources Planning (DRP) identifies demand on distribution centers and resulting impact on resupply facilities and presents transportation loading and scheduling information (System/38 only).
 - Order Processing processes entry and disposition of customer orders and provides customer service information; and allows printing of customer acknowledgements and shipping documents.
 - Billing and Sales Analysis allows customer orders to be billed, with inventory, sales, and accounting information maintained automatically.
 - Sales Retrieval System provides for user-defined sales data, order data, and sales history (System/36 only).
 - Purchasing links planning, requisitioning, receiving, and inspection to inventory stocks to permit evaluation of vendors and purchasing performance; and prints purchase orders and receiving documents.
 - Forecasting provides for statistical forecasts of future customer sales.
- Financial products, accounting for approximately 25% of revenues
 - General Ledger and Financial Retrieval System provides for Accumulation of financial information to support accounting functions and allows analysis of information for management decision making; and allows for user-defined financial reporting.
 - Accounts Payable provides for the control and processing of

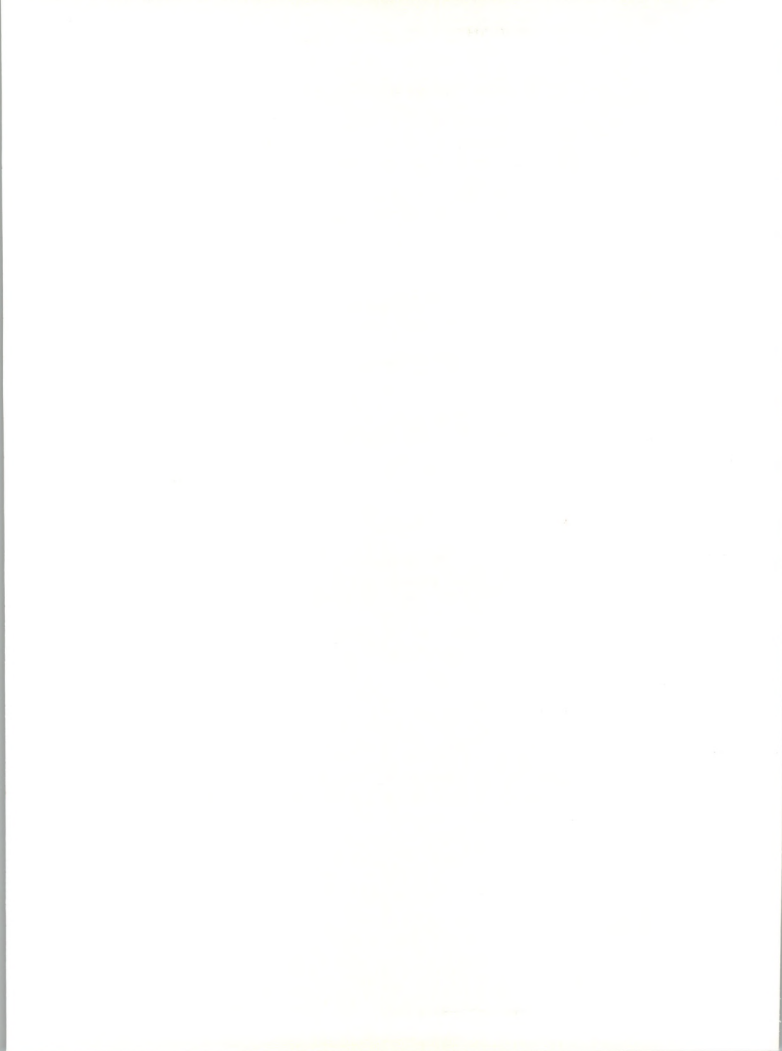


payables information.

- Accounts Receivable collects and disseminates cash flow information aimed at accelerating collection, assessing credit, and reducing bad debt.
- Multiple Currency provides multiple currency operations for the financial, inventory, order processing, billing, and sales products.
- Payroll (U.S.)
- Currency Translation allows consolidation, reporting, and analysis of multiple currency financial data.
- Cross-application products
 - Concepts and Applications Education provides a structured, hands-on training course for BPCS users, which includes case studies, actual computer operations, and classroom material.
 - Performance Measurement provides feedback and accountability in several key management areas to allow executives to monitor performance of their business against plan (System/38 only).
 - Information Retrieval allows non-technical end users to develop their own reports and inquiries, and thus extract data in a format useful to them.

There are currently over 15,000 BPCS products at 2,400 installations licensed to over 2,000 companies worldwide. The BPCS products currently range in price from \$1,500 to \$12,000, with a total product line value of over \$210,000 on the System/38 and \$70,000 on the System/36.

Affiliates are responsible for product installation and support services. SSA provides technical, application, and sales training; marketing and technical support; and emergency customer service to its affiliates. SSA also takes primary sales responsibility for large accounts.



Industry Markets

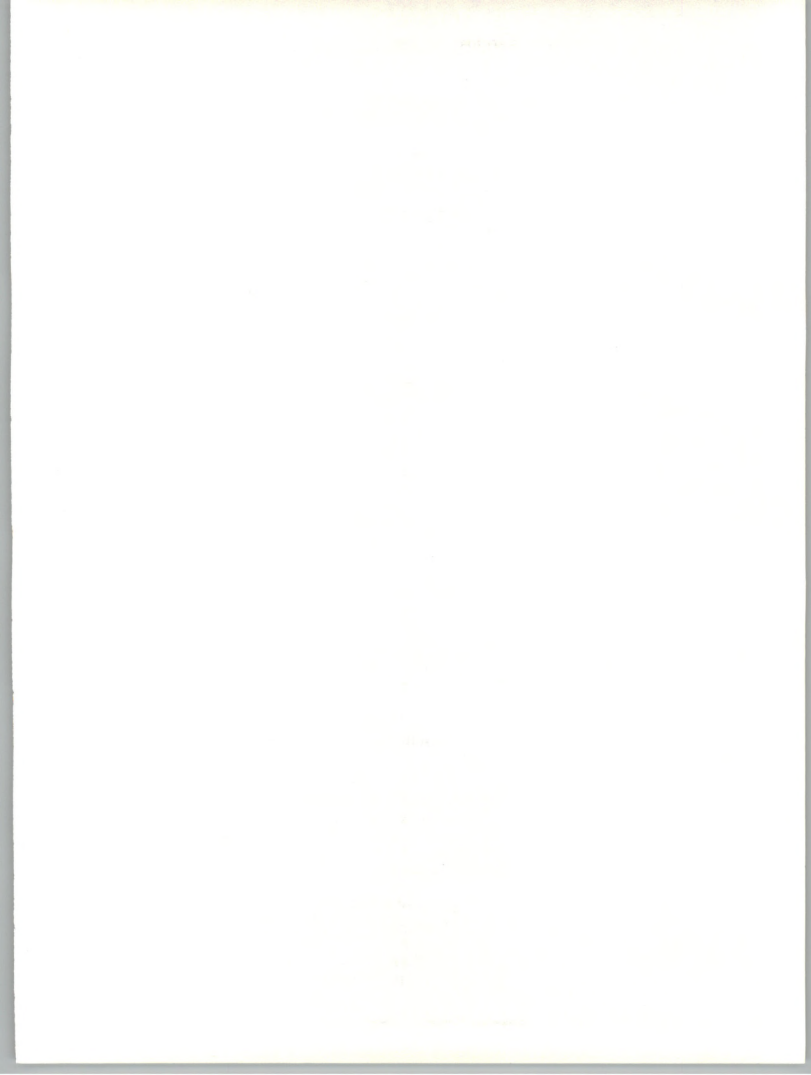
SSA's revenue is derived primarily from the discrete manufacturing and distribution industries.

The target market for the BPCS product line includes manufacturers with annual revenue ranging from \$5 million to \$200 million, distributors with annual revenue ranging from \$10 million to \$200 million, and divisions and subsidiaries of larger companies.

Currently, the majority of the company's customers are intermediate sized companies, but a significant and increasing portion of sales are to larger companies. To date, SSA has made sales to divisions or subsidiaries of over 100 of the combined Fortune 500 and Fortune International 500.

Geographic Markets

Approximately 60% of SSA's revenue is derived from the U.S.





Opportunities

There is a need in most sectors for accounting software that can be interfaced to industry-specific applications. MSA is addressing this need on a general basis, and a number of vendors such as Cullinet and Harris Data have interfaces to manufacturing, human resources, or other applications. However, there are a number of applications, according to users, in manufacturing, banking, construction, and other sectors where improved interfaces could be offered.

The developing capabilities of workstations and PCs give many cross-industry accounting software vendors the opportunity to sell software into new market niches. There are areas in many markets, from construction, wholesale, and manufacturing sectors to state and local government, where economic improvements in accounting solutions are being sought.

Mainframe and minicomputer-based vendors must evaluate the ability to move their software to standalone and/or networked workstations that will increasingly be used as departmental systems within accounting departments and subdepartments. Also, even when the main application stays on a mainframe or minicomputer, workstations will be used to handle subsidiary tasks, such as audit and review; this provides opportunity for add-on software.

Many users are also seeking accounting software that can be used on networks or with certain data bases. Users are also beginning to seek accounting software that will support distributed applications. One energy company feels that no existing software is yet available that will fully meet this need.

Vendors must take advantage of the growth of EDI by offering modules to support EDI with their accounting software.



The use of rule-based or expert systems that will work with accounting software and carry out audits or other activities on an automatic basis is of increasing interest, particularly in the mainframe and minicomputer markets.

Of particular importance for all services and product vendors is the need to support management reporting through PC/workstations. These systems vary in their intensity of use from executives, who will use executive information systems (EIS) on an aperiodic basis, to operational supervisors, who will use the system continuously to carry out their appointed tasks. Interfaces with standard EIS such as Commander from COMSHARE and PILOT will be a must for software for large companies.

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Appendix: Definitions

Accounts payable—Monies owed by the business to its suppliers for goods and services provided.

Accounts Receivable—Monies owed to the business by its debtors, generally for goods or services provided previously.

Cross-Industry Accounting Applications—Composed of the following applications products and services that operate in more than one industry sector:

- Accounts payable
- Billing/invoicing
- Credit management
- Fixed assets
- International accounting (currency conversion, consolidation, value-added taxation, etc.)
- Purchasing
- Taxation
- Accounts receivable
- Costing
- General ledger
- Integrated accounting (combination of standard accounting applications into a single product)
- Receiving
- Shareholder accounting
- Other related applications

EDI (Electronic Data Interchange)—The computer-to-computer communications based on established business document standards, or using translations by EDI software housed on users' computers, located at remote computer service bureaus or on value-added network processors.



General Ledger—A log of every accounting transaction. General ledger financial information is allocated between asset, liability, equity, revenue and expense accounts.

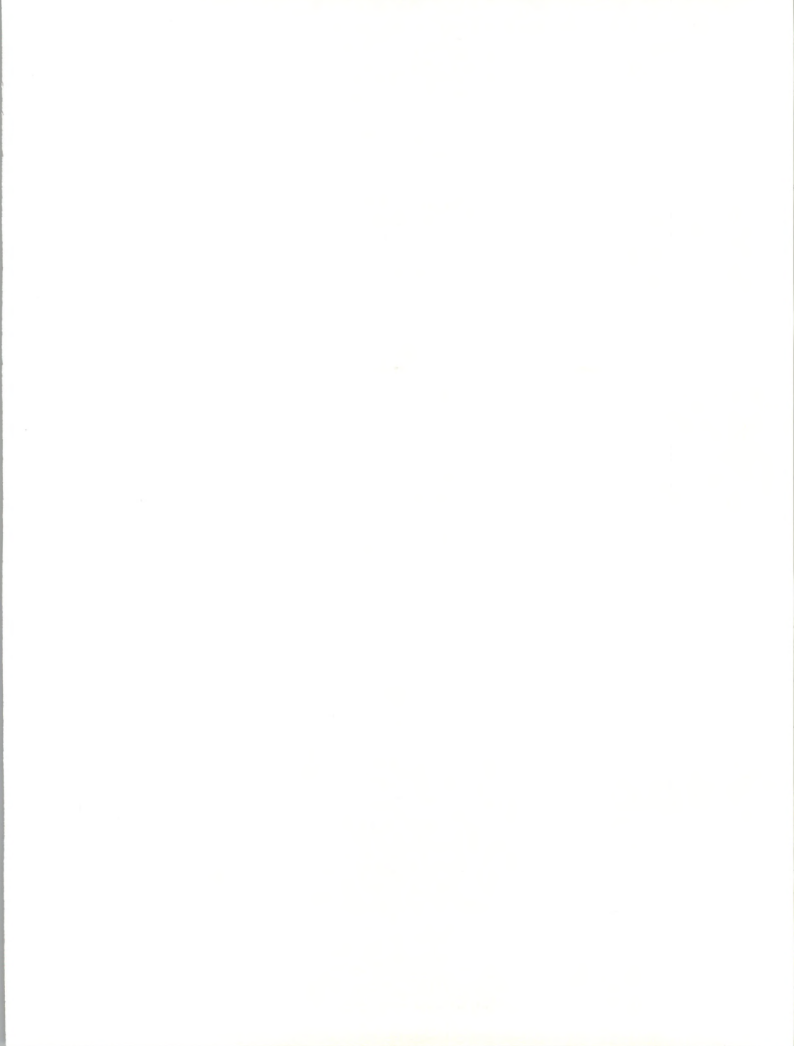
Payroll—Records for monies owed to employees and related accounts for tax withholding, employee benefit expenses, and vacation/sick pay. Included under INPUT's discussion of "Human Resources."

Relational Data Base Management System (RDBMS)—A means of storing and accessing large amounts of data. A relational model is characterized by:

- Simple structure (i.e., tables)
- Flexibility
- Ease of use
- Strong functionality
- Centralized data storage

Other RDBMS features include:

- 4GL
- Support for IBM's Structured Query Language (SQL) user interface
- Global data dictionary



AC-B

Appendix: Accounting Market Forecast Data Base, 1988-1993

EXHIBIT B-1

ACCOUNTING CROSS-INDUSTRY SECTOR USER EXPENDITURE FORECAST BY DELIVERY MODE, 1988 - 1993 (In Millions of Dollars)

Sector by Delivery Mode	1987	Growth 87-88 (%)	1988	1989	1990	1991	1992	1993	CAGR 88-93 (%)
Total Accounting Sector	2,610	11	2,905	3,180	3,500	3,870	4,270	4,790	11
Processing Services	950	4	990	1,030	1,070	1,100	1,120	1,150	3
Transaction Processing Services	950	4	990	1,030	1,070	1,100	1,120	1,150	3
Application Software Products	1,270	20	1,515	1,730	1,990	2,320	2,690	3,165	16
Mainframe	570	10	630	660	700	740	770	810	5
Minicomputer	380	15	430	480	520	580	630	690	10
Workstation/PC	320	41	455	590	770	1,000	1,290	1,665	30
Turnkey Systems	390	3	400	420	440	450	460	475	3

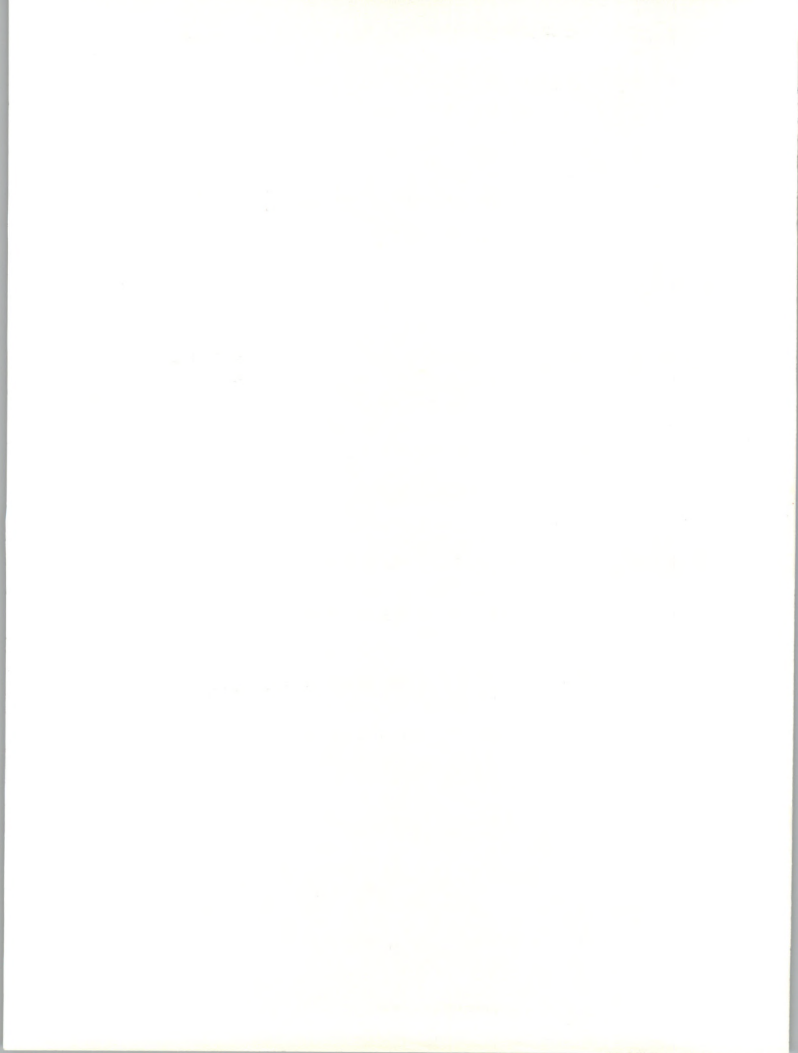


EXHIBIT B-2

**ACCOUNTING SOFTWARE PRODUCTS MARKET
BY PLATFORM SIZE AND APPLICATION,
1988-1993**

Application	User Expenditures by Platform Size (\$ Millions)							
	Mainframe		Minicomputer		PC/Workstation		Total	
	1988	1993	1988	1993	1988	1993	1988	1993
General Ledger	205	225	130	220	95	440	430	885
Accounts Receivable	130	180	120	195	95	445	345	820
Accounts Payable	130	200	120	185	70	395	320	780
Other	165	205	60	90	195	385	420*	680*
Total	630	810	430	690	455	1,665	1,515	3,165

*The "Other" category for PC/Workstation software includes integrated applications.



About INPUT

INPUT provides planning information, analysis, and recommendations to managers and executives in the information processing industries. Through market research, technology forecasting, and competitive analysis, INPUT supports client management in making informed decisions.

Continuous-information advisory services, proprietary research/consulting, merger/acquisition assistance, and multiclient studies are provided to users and vendors of information systems and services (software, processing services, turnkey systems, systems integration, professional services, communications, systems/software maintenance and support).

Many of INPUT's professional staff members have more than 20 years' experience in their areas of specialization. Most have held senior management positions in operations, marketing, or planning. This expertise enables INPUT to supply practical solutions to complex business problems.

Formed as a privately held corporation in 1974, INPUT has become a leading international research and consulting firm. Clients include more than 100 of the world's largest and most technically advanced companies.

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